Final Project Proposal

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Proposed Final Project:

Our proposed final project consists of two parts. At least one part will be completed for the final project, although our goal is to complete both parts. They will both build off the processor we built in MP4;

Part 1: Implement the M Standard Extension for Integer Multiplication and Division so the processor can handle more complex arithmetic calculations.

Relevant Sources:

- https://csg.csail.mit.edu/6.375/6_375_2019_www/resources/riscv-spec.pdf (Pages 59-61)
- M Extension for Integer Multiplication and Division, Version 2.0 :: RISC-V Ratified Specifications Library\
- RISC-V Instruction Set Manual, Volume I: RISC-V User-Level ISA | Five EmbedDev
- RV32M Multiplication and Division Instructions — CVA6 documentation
- Ayesha-Quddus/RISCV_M_Extension: This repository contains the RTL design for a RISC-V RV32IM M-extension, implementing multiplication and division in hardware. - implementation for reference.

Part 2: Synthesize Processor with RV32I Instruction Set and have an LED blinking program that blinks the LEDs on the board in an interesting way (like MP1 or MP2). We would likely use the PWM functions defined in memory.sv to control the red, green, and blue LEDs to blink in a way that can be described by the instructions.