

**Homework 5:
Project Proposal**

1 Project Proposal

This assignment, given in parallel with Homework 6, is to come up with a project proposal containing the following parts. The default project is the Athena microprocessor, and the requirements are on the website. You still have to write a proposal describing at least functional system diagrams regardless of what project you choose.

1.1 Description

An informal description of the project you are proposing. Explain what it is used for, and try to explain what specific functions the chip will perform. If outputs conform to a certain standard (e.g., RS232, 7-segment, BCD...) mention that too.

1.2 A list of inputs and outputs

Make sure the number of inputs and outputs does not exceed 35 (the remaining nine inputs are needed for the clock(4), power(2) and ground(2) and reset-(1)). Explain briefly what the inputs represent (e.g., data request, rs232 clock input...)

1.3 Major sections

A description of the major sections of the circuit. Indicate what the storage, functional, and control requirements are. I.e., the chip needs to store five 8-bit numbers representing..., perform additions, and a PLA needs to be added to execute the control program. Then specify how you are going to realize them. E.g., a datapath consisting of 5 registers, an adder, and a shifter; a PLA with 10 inputs and 10 outputs.

1.4 A floorplan

You have $1,900 \lambda$ by $1,900 \lambda$ available for your design. Determine approximate sizes for all the parts in the previous section, and indicate how you will place them on the chip. To convey this, indicate the result on a 19×19 square grid.

2 Grading

You will receive an A for this assignment when you turn in a complete (in the sense of the preceding four categories) proposal that we deem appropriate. We give no guarantees that a final project will be accepted unless a project proposal has been approved first. We may indicate that a proposed project, if implemented correctly, is of sufficient complexity to get a B, say, in which case you have the option of revising the proposal, or going for the B project.

3 To turn in

For this assignment turn in two copies of your proposal, one for us to grade, and one to keep and compare your final design to.

4 To help you

- You may, of course, discuss your project proposal freely with your classmates and others. The TAs are standing by to help you find a project if you cannot think of anything.