

Homework 5

EECS 427

For any design to be effective, it must fit into the target system with relative ease. This means that a designer must know what parts will compose a system and how those parts will interact with the portion he/she is designing. When the external interfaces are not well understood, they will likely be designed poorly such that the resulting device does not function within the system.

For this assignment, your group must turn in hardcopies of the following documents:

- System diagram showing interconnection of major system blocks such as: microcontroller core (controller + datapath), on-chip peripherals and off-chip devices needed to realize the system. The microcontroller core should be a module by itself. There's no need to explicitly show datapath, control or datapath submodules.
- Bond pad diagram and pin assignment. This simple diagram should show all pads necessary for your design arranged around the periphery of the chip in the order you intend. Each pin should have a name or label. A table should accompany this diagram showing pin name, function and what external device pins the pin will connect to. For power and ground, plan on at least one of each for each side of the chip (minimum of 8 pins for power and ground).
- Find datasheets for each external device you will interface with. Do not hand in more than 3-4 pages for each datasheet. Select the pages that best describe functionality via block diagrams and pin descriptions. If you cannot find devices that exactly match your systems needs, find devices that closely resemble the functionality of the external component.

The goal of this assignment is for your group to demonstrate understanding of the requirements for your external interfaces. Look closely at the datasheets you gather and add the necessary pins to your design in order to interface with the external devices.