Introduction to PSoC
CSCE 689 - Sensory Interfaces
What is a PSoC?

- **Programmable System on a Chip**
- 8051 or ARM Microcontroller
- Digital Block Array
  - 24 configurable PLDs, can take on almost any digital functionality up to 67 MHz
- Configurable Analog Subsystems
- Extremely reconfigurable inter-chip routing network, allowing any internal component to connect to nearly any external pin
- **Easy-to-use APIs for all of the above, enabling you to use complex functionality without needing to understand the hardware complexities underneath.**
PSoC 5 Microcontroller
Onboard USB Programmer
Direct USB Link to PSoC
Power via 9V battery, USB, or barrel jack
Expansion Headers for Connecting External Components (52 pins total)
Analog Optimized Pins

Digital Pins
Solderable Breadboard
Download at http://cypress.com/ (registration required)

Or, get the ISO file from \\chevron\installss\psoc
First Homework Assignment

- Download and Install PSoC Creator 2.0
- Watch this Introduction to PSoC Creator Video:
  - http://www.youtube.com/watch?v=UrpdbefYg-0
- **Create a simple program**
  - Make one of the LEDs on the PSoC blink at 1Hz. (500ms on, 500ms off)
  - HINT: There are two LEDs hardwired to PSoC Pins P6[3] and P6[2].
  - HINT: Setting a pin HIGH will turn an LED on.
  - HINT: Setting a pin LOW will turn an LED off.
Getting Started

File > New > Project
Select Empty PSoC 5 Design
Drag a Digital Output Pin to Schematic Window
Double-Click Pin to Disable HW Connection (enables Pin to be controlled by firmware)

If HW Connection is checked, it will allow you to connect the pin to other components on the block diagram.
Read Datasheet to Learn API.
Functions listed in API use a generic prefix. To control a specific component, replace the prefix with the component's name.

Pin_1_Read(); // Reads value from Pin_1
Write your code in main.c
One last hint.

CyDelay(123); // Delays execution for 123 ms.

BONUS:
Blink one LED at 1 Hz using the Pin API.
Blink the other LED at 2 Hz using no code.

HINT: Look at the Clock component.
Reminders:

LEDs are located at P6[3] and P6[2]

USB cable must be plugged into the USB programming port to program the board. It’s the one closest to the corner.