Experiment: Calbot (2)

Verify your wirewrap

Ask your TA to check your wirewrap to make sure there is no obvious error. Then, flash the Motor Hex File (save the file as the type "All files") to the board using Phytec Flash Tools to verify your wirewrap. The hex file will run both motors for a short second and reverse for another second, and repeats itself.

Directions on using Phytec Flash Tools 16W
1. Open the Phytec Fash Tool 16 W (Start Menu ▶ Programs ▶ Phytec ▶ Phytec Flash Tool 16W)
2. Communication Setup
   KITCON-167
3. Properties for Serial Connection
   Interface – COM1   (port for serial cable, may be different at home)
   Baud rate – 57600 (pick the fastest speed)
   Flash Tools will load boot file, flash tools, and connect to the board
4. Sector Utilities
   Select all sectors (Sectors 0-7) and **Erase Sector(s)**
5. File Download
   File open … Calbot.h86   (select your project hex file)
   Download   (download status will appear)

After the download is complete you can run the code in flash by switching bit 1 of the DIP switch array off and hitting the board reset.

Turning one motor on (PWM signal of 200 Hz and 60% duty cycle)

Once you have verified that your wirewrap is correct, complete the code to turn on one motor. Use the framework in Chapter 5 of the Calbot manual as reference. **BEFORE** you connect Motor 1 or Motor 2, use the digital oscilloscope probes to scope the PWM signal. Verify with your TA that the frequency and duty cycle of the PWM signal is the same as desired. Next, connect Motor 1 or Motor 2 and show that your motor turns.

Turning both motors on (PWM signal of 200 Hz and 60% duty cycle)

Now modify your code to turn on both motors.

Motor control

Write a program that runs both motors forward for approximately 1 second and then reverse the direction for both motors for approximately 1 second. It then should run both motors forward for approximately 1 second and reverse for 1 seconds, and so on.