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[Progress \(/courses/UTAustinX/UT.6.01x/1T2014/progress/\)](/courses/UTAustinX/UT.6.01x/1T2014/progress/)

[Questions \(/courses/UTAustinX/UT.6.01x/1T2014/a3da417940af4ec49a9c02b3eae3460b/\)](/courses/UTAustinX/UT.6.01x/1T2014/a3da417940af4ec49a9c02b3eae3460b/)

[Syllabus \(/courses/UTAustinX/UT.6.01x/1T2014/a827a8b3cc204927b6efaa49580170d1/\)](/courses/UTAustinX/UT.6.01x/1T2014/a827a8b3cc204927b6efaa49580170d1/)

Pins PA1 – PA0 create a serial port, which is linked through the debugger cable to the PC. The serial link is a physical UART as seen by the LF4F120/TM4C and mapped to a virtual COM port on the PC. The USB device interface uses PD4 and PD5. The JTAG debugger requires pins PC3 – PC0. The LaunchPad connects PB6 to PD0, and PB7 to PD1. If you wish to use both PB6 and PD0 you will need to remove the R9 resistor. Similarly, to use both PB7 and PD1 remove the R10 resistor.

The Tiva LaunchPad evaluation board has two switches and one 3-color LED. See Figure 6.3. The switches are negative logic and will require activation of the internal pull-up resistors. In particular, you will set bits 0 and 4 in

GPIO_PORTF_PUR_R register. The LED interfaces on PF3 – PF1 are positive logic. To use the LED, make the PF3 – PF1 pins an output. To activate the red color, output a one to PF1. The blue color is on PF2, and the green color is controlled by PF3. The 0-Ω resistors (R1, R2, R11, R12, R13, R25, and R29) can be removed to disconnect the corresponding pin from the external hardware.

The LaunchPad has four 10-pin connectors, labeled as J1 J2 J3 J4 in Figures 6.2 and 6.4, to which you can attach your external signals. The top side of these connectors has male pins, and the bottom side has female sockets. The intent is to stack boards together to make a layered system. Texas Instruments also supplies Booster Packs, which are pre-made external devices that will plug into this 40-pin connector. The Booster Packs for the MSP430 LaunchPad are compatible with this board. One simply plugs the 20-pin connectors of the MSP430 booster into the outer two rows. The inner 10-pin headers (connectors J3 and J4) apply only to Stellaris or Tiva Booster Packs.

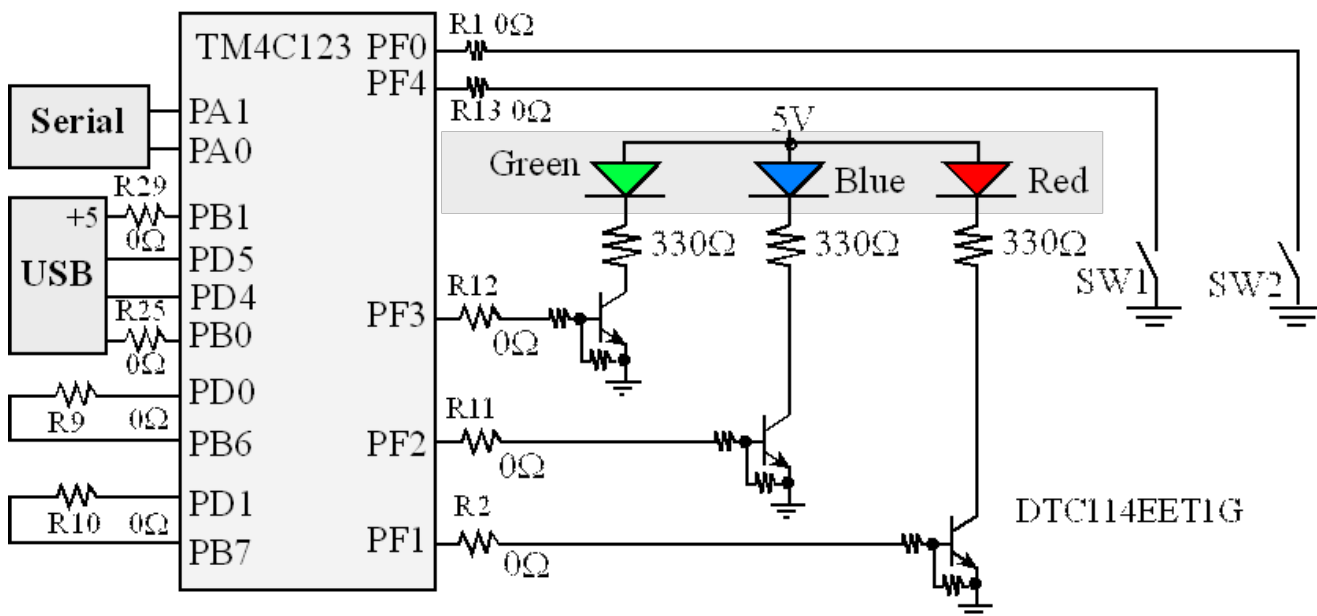


Figure 6.3. Switch and LED interfaces on the Tiva LaunchPad Evaluation Board. The zero ohm resistors can be removed so the corresponding pin can be used for its regular purpose.

There are a number of good methods to connect external circuits to the LaunchPad. One method is to purchase a male to female jumper cable (e.g., item number 826 at www.adafruit.com (<http://www.adafruit.com>)). A second method is to solder a solid wire into a female socket (e.g., Hirose DF11-2428SCA) creating a male to female jumper wire.

Since the LaunchPad has both male and female headers, a very inexpensive method to build systems is to connect solid 24 gauge wire to the female headers on the bottom.

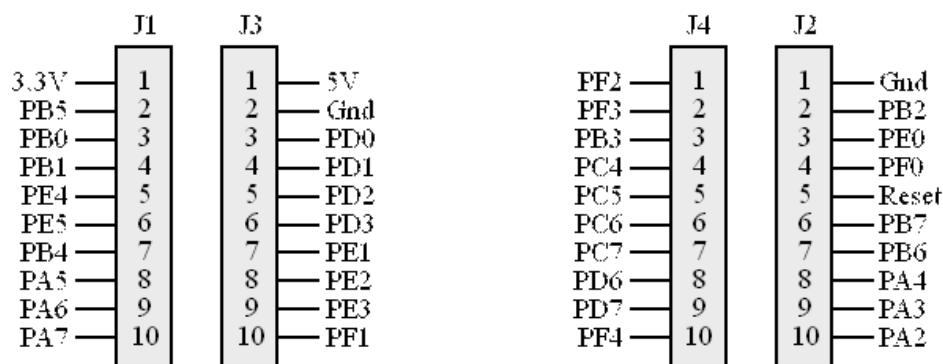


Figure 6.4. Interface connectors on the Tiva LM4F120/TM4C123 LaunchPad Evaluation Board.

Each pin has one configuration bit in the GPIOAMSEL register. We set this bit to connect the port pin to the ADC or analog comparator. For digital functions, each pin also has four bits in the GPIOCTL register, which we set to specify the alternative function for that pin (0 means regular I/O port). Not every pin can be connected to every alternative function. See Table 6.1.

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