Minimum Voltage Demo

# Overview

This demonstration builds on the previous demonstration (power demo) to evaluate minimum operating voltage for the RDK, and associated power use as various peripherals are disabled under user control.

# Comments and Suggestions

* Connect a variable voltage power supply to the J4 or J5 connectors or the USB connection (J16).

Note that there are diodes (D1, D5) between the power inputs and the 5V0 rail. These diodes will drop up to 210 mV, depending on current flowing through them. The actual operating voltage should be measured at the 5V0 Rail rather than the input connector.

* Load up the program and ensure the LCD shows “Start”, and all LEDs and devices are on. This program is similar to the power demo but also uses S2 to allow the user to toggle LED1. This indicates the CPU is executing the program and not in reset. Holding down S2 will flash the LED.
* As you lower the voltage you should see the following effects. Note that with 5.0V in, the 5V0 rail is at 4.79 V.
  + LCD backlight dims, and turns off completely at about 5V0 rail = 2.6 V
  + LCD contrast fades and display blanks out at about 2.15 V. Green LEDs dim also
  + Green LEDs fade out at 1.7 V.
  + Note that pressing S2 has no effect now. Raise the voltage to 5 V, press reset, and repeat the process of lowering the voltage while ensuring S3.
  + S2 should work until the 5V0 rail falls to about 1.702 V.
* You should observe currents as follows. Remember to disable the debug MCU by holding it in reset (connect pins 1 and 2 of J15).

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| 5V0 Rail | Start + Debugger Reset | All Done + Debugger Reset |
| 4.7 V | 67.9 mA | 19.7 mA |
| 3.5 V | 51.6 mA | 14.6 mA |
| 3.0 V | 39.7 mA | 13.4 mA |
| 2.5 V | 27.8 mA | 10.2 mA |
| 2.0 V | 17.1 mA | 6.8 mA |
| 1.74 V | 11.9 mA | 4.9 mA |