

TI-RSLK **MAX**

Texas Instruments Robotics System Learning Kit



Module 14

Activity: I/O Triggered Interrupts

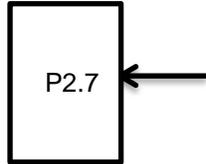


Activity: I/O Triggered Interrupts

Question 1

Write C code that counts the number of times an input on P2.7 goes from 0 to 1. Show the initialization and the ISR

```
void Input_Init(void);
void PORT2_IRQHandler (void);
```

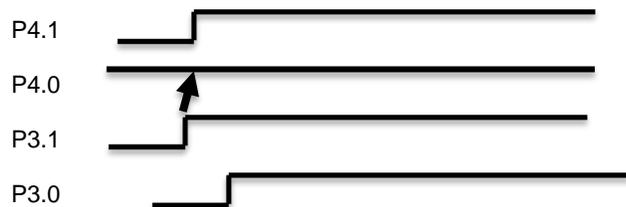
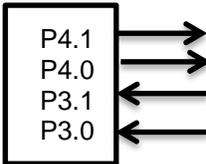


This results in count becoming 6.

Question 2

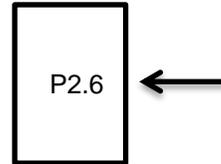
You have two inputs and two outputs. P4.1 and P4.0 are outputs, initially low. Assume you have two positive logic switches interfaced to P3.0 and P3.1. Write software that sets P4.1 high if the rising edge of P3.1 occurs first, and set P4.0 high if the rising edge of P3.0 occurs first. After the first interrupt, disarm edge-triggered interrupts so no more interrupts occur. Show the initialization and the ISR

```
void Input_Init(void);
void PORT3_IRQHandler (void);
```



Question 3

Assume you have a negative logic switch connected to P2.6. You wish to count the number of times the input on P2.6 goes from 1 to 0. The trouble is the switch bounces (has multiple edges each time the switch is pressed and each time the switch is released). You must use interrupts. However you may use interrupts in any manner you choose to solve this problem. The bounce finishes within 1ms, and the switch is pressed for at least 100 ms and released for at least 100 ms (max touch rate is 5 touches/sec). Show the initialization and the ISR



Question 4

Write C code that sets the priority of a Port 4 edge-triggered interrupt to level 5.

Question 5

Write C code that enables a Port 4 edge-triggered interrupt in the NVIC.

Question 6

Write C code that enables a Port 4 edge-triggered interrupt in the NVIC

ti.com/rslk

IMPORTANT NOTICE AND DISCLAIMER

TI PROVIDES TECHNICAL AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS AND IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT OF THIRD PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for skilled developers designing with TI products. You are solely responsible for (1) selecting the appropriate TI products for your application, (2) designing, validating and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements. These resources are subject to change without notice. TI grants you permission to use these resources only for development of an application that uses the TI products described in the resource. Other reproduction and display of these resources is prohibited. No license is granted to any other TI intellectual property right or to any third party intellectual property right. TI disclaims responsibility for, and you will fully indemnify TI and its representatives against, any claims, damages, costs, losses, and liabilities arising out of your use of these resources.

TI's products are provided subject to TI's Terms of Sale (www.ti.com/legal/termsofsale.html) or other applicable terms available either on ti.com or provided in conjunction with such TI products. TI's provision of these resources does not expand or otherwise alter TI's applicable warranties or warranty disclaimers for TI products.

Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
Copyright © 2019, Texas Instruments Incorporated