TI-RSLK

Texas Instruments Robotics System Learning Kit

Module 6

Quiz: General Purpose Input Output

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Q1 Arrays and Indexing

Write C code to find the minimum of 32 numbers. Assume the 32 numbers are in a 16-bit unsigned array, passed by reference into your function. The prototype is

```
uint16_t Min(int16_t buffer[32]);
```

Q2 Direction Register

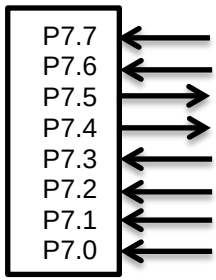
What is a direction register? Why does the microcontroller have direction registers?

Q3 Select Registers

What are the P1->SEL1 and P1->SEL0 registers? Why do we clear these bits during initialization?

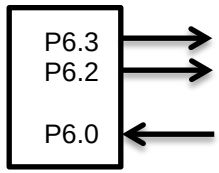
Q4 Initialization

Write software that initializes MSP432 Port 7, so pins 5,4 are output and the rest are input. The code need not be friendly because you are initializing all 8 bits of Port 7.



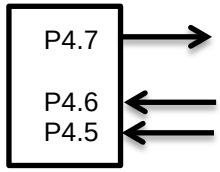
Q5 Initialization

Write software that initializes MSP432 Port 6, so pins 3, 2 are output and pin 0 is input. The code must be friendly, meaning you should leave the other 5 bits as is.



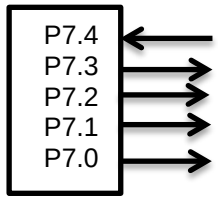
Q6 Initialization

Write software that initializes MSP432 Port 4, so pin 7 is output and pins 6,5 are input. The code must be friendly, meaning you should leave the other 5 bits as is.



Q7 Input/Output

The overall objective is to create a 4-bit counter. The system has one digital input and four digital outputs. The counter is incremented each time the input goes from low to high. Once the counter reaches 15 roll it back over to 0 on the next press/release. Connect the output to Port 7 bits 3 – 0 and connect the input to Port 7 bit 4. Show the initialization code and the main loop that performs the input/output over and over. Make the code friendly (does not affect bits 5, 6, and 7 of Port 7).



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Mailing Address: Texas Instruments, Post Office Box 655303, Dallas, Texas 75265
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