Configuring the pin:

* Each port consists of 3 register bits:
  + DDxn: accessed at the DDRx io address
    - Selectes direction of pin. If written to one, configured as output pin. If written as zero, configured as input pin

We have that PB4 is our LED (output) and PB3 is our button pin (input)

So we want:

DDRB = 0b00010000

* + PORTxn: accessed at the PORTx io address
    - If PORTxn is written to 1 when configured as input, pullup resistor is activated. Must be written to 0 to disable.
    - If portxn is written to 1 when configured as output, the pin is driven high
  + PINxn: accessed at the PINx io address
    - Writing a one to Pinxn toggles the value of portxn independent of ddrxn. The SBI instruction can be used to toggle one single bit in a port

10.4.2: PORTB – Port B Data Register : for choosing pullup/pulldown etc

We want the pin we are using for the button and led to be pulldown, and we want the pins for all others unused to be pull up

Turn off the pullup resistor for pin 3, and turn it off for the led pin(4) but leave them on for all the others. If we turn the pullup resistor on for pin 4 when pin 4 is configured as an output, it will be driven high.

PORTB = 0b11100111;

10.4.3 DDRB – Port B Data Direction Register

DDRB = 0b00010000; (set pin PB4 to output, all others to inputs)

10.4.4 PINB – Port B Input Pins Address : changing value of a bit toggles value of Portxn. Don’t touch this, or simply do:

PINB = 0b0000000

See page 57 for unused pins. Best to set the internal pullup.

**Interrupts:**

See page 48->

* GIMSK
  + General interrupt mask register

Bits 7, 4:0 are reserved

Bit 6: INT0, external interrupt request 0 enable (DON’t TOUCH THIS)

Bit 5: PCIE: Pin change interrupt enable

When set to one, and the I-bit in status register (SREG) is set to one (call sei()), any change enabled on PCINT[5:0] will cause an interrupt

GIMSK = 0b00100000

* PCMSK
  + pin change mask register
  + PCMSK register controls which pins contribute to the pin change interrupts on PCINT [5:0]

bits 7:6 are reserved

bits 5:0 select whether a pin change interrupt is enabled on the corresponding pin

if bit 5 of GIMSK is 1, then these overall are enabled.

Enable bit 3!!!! For button 😊

PCMSK = 0b00001000

The specification of falling, rising, or low can be set according to the MCU Control register, MCUCR. Recognition of interrupts as rising/falling on INT0 requires an I/O Clock… ☹ see page 23