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/*
NAME:   hardware_delay_test
AUTHOR: B. Jarnagin
REV:    - >020160223
DESCRIPTION:    Creates a 1 ms wide pulse on OC0 pin
                                Interrupt controlled
TARGET: ATMEGA128 @ 16 MHz
USES:   TC0, pin OC0
*/

#include <iom128.h>         //Atmega128 definitions
#include <intrinsics.h>     //Intrinsic functions
#include <avr_macros.h>     //Useful macros

// COUNTER IN NORMAL MODE WITH CLK/64
const char COUNTER_MODE = (1 << CS01) | (1 << CS00);

// COUNTER WILL RUN FOR 1 ms = 64*(16E-6 sec)*(255-5)
const char DELAY_POSITION = 5;

// PIN B 4 is OC0
#define OC0 4

void main(){
        // SETUP PIN OC0 FOR OUTPUT
        DDRB = (1 << OC0);

        // SETUP INTERRUPT FOR OVERFLOW
        TIMSK = (1 << TOIE0);

        // LOAD VALUE FOR COUNTER
        TCNT0 = DELAY_POSITION;

        // BEGIN PULSE
        SETBIT(PORTB, OC0);

        // SETUP COUNTER PRESCALER/MODE
        TCCR0 = COUNTER_MODE;

        __enable_interrupt();

        // ENTER CAPTURE LOOP, DONE WITH SETUP
        while(1);
}

#pragma vector=TIMER0_OVF_vect
__interrupt void isr_TOV0(void){
        // DISABLE COUNTER
        TCCR0 = 0;

        // END PULSE
        // CLEARBIT(PORTB, OC0);
}
```