

```
/* Homework 2 Problem 3
*
* Copies switch pattern to LEDs only
* when KEY3 changes from 0 to 1.
*
* Question: when KEY3 is not being pressed,
* is it a 0 or a 1? How can you find out?
*
*/

.include "ubc-de1media-macros.s"

.equ            KEY3mask,        0x08

.global _start

.text
_start:        movia    r23, IOBASE

loop:

/* wait for KEY3 to go from 1 back to 0 */
/* without this wait, it behaves like a flow-through latch */
while1:        ldwio    r3, KEY(r23)
                andi     r3, r3, KEY3mask
                bne      r3, r0, while1 /* wait while KEY3=1 */

/* wait for KEY3 to go from 0 to 1 */
while0:        ldwio    r3, KEY(r23)
                andi     r3, r3, KEY3mask
                beq      r3, r0, while0 /* wait while KEY3=0 */

/* since KEY3 went from 0 to 1, copy switches to LEDs */
copy:          ldwio    r2, SWITCH(r23)
                stwio    r2, LEDR(r23)

                br       loop

.end
```