

```

1  .define LED_ADDRESS 0x1000
2  .define SW_ADDRESS 0x3000
3  .define MAX_SPEED 0x1000
4
5  // This program displays a binary counter on the LED ports
6  // The speed of the counter is controlled by the switches
7      mvi    r0, #0           // Used for counting
8      mvi    r1, #1           // Used for add/sub 1
9  MAIN:    mvi    r4, #SW_ADDRESS // Point to switches
10         ld     r6, [r4]      // Read SW values
11         add    r6, r1        // Add 1 for minimum delay
12
13 // Count down delay until it reaches 0
14 DELAY1:   mvi    r5, #MAX_SPEED // Reset max speed delay counter
15         mvi    r3, #DELAY2      // Point to inner delay loop
16
17 // Each delay counter will count MAX_SPEED times
18 DELAY2:   sub    r5, r1        // Count down by 1's
19         mvnz   r7, r3        // Continue inner delay loop
20 // End of DELAY2
21
22         sub    r6, r1        // Count down by 1's
23         mvi    r3, #DELAY1      // Point to outer delay loop
24         mvnz   r7, r3        // Continue outer delay loop
25 // End of DELAY1
26
27         add    r0, r1        // Increment binary counter
28         mvi    r4, #LED_ADDRESS // Point to LED port
29         st     r0, [r4]      // Display to LED port
30
31         mvi    r7, #MAIN      // Endless looping
32

```