```c
1  /*
2   * two_to_four_decoder_bitwise_C_ops.c
3   *
4   * Created: 2/18/2021 7:21:01 PM
5   * Author : Judah Ben-Eliezer
6   */
7
8  #include <avr/io.h>
9
10 #define INPUT_gc 0x1F;
11 #define OUTPUT_gc 0x0F;
12
13 int main(void)
14 {
15
16     PORTA_DIR &= INPUT_gc;
17     PORTD_DIR |= OUTPUT_gc;
18
19     uint8_t G_ = PORTA_IN | ~PIN7_bm, B = PORTA_IN | ~PIN6_bm, A = PORTA_IN |
          ~PIN5_bm, Y0, Y1, Y2, Y3;
20
21     while (1)
22     {
23         Y0 = (G_ | (((A << 1) | B) << 1) >> 7) | 0xFE;
24         Y1 = (G_ | (((~A << 1) | B) << 1) >> 6) | 0xFD;
25         Y2 = (G_ | (((A << 1) | ~B) << 1) >> 5) | 0xFB;
26         Y3 = (G_ | (((~A << 1) | ~B) << 1) >> 4) | 0xF7;
27
28         PORTD_OUT = Y0 & Y1 & Y2 & Y3;
29
30     }
31 }
32
33
```