```
 1
 2  AVRASM ver. 2.2.7  E:\ESE_280\$MyDocuments$\Atmel Studio\7.0\lab_4
      \three_to_eight_decoder\three_to_eight_decoder\main.asm Tue Sep 29 18:52:05
      2020
 3
 4  E:\ESE_280\$MyDocuments$\Atmel Studio\7.0\lab_4\three_to_eight_decoder
      \three_to_eight_decoder\main.asm(9): Including file 'C:/Program Files (x86)
      \Atmel\Studio\7.0\Packs\atmel\ATmega_DFP\1.2.209\avrasm\inc\m4809def.inc'
 5  E:\ESE_280\$MyDocuments$\Atmel Studio\7.0\lab_4\three_to_eight_decoder
      \three_to_eight_decoder\main.asm(9): Including file 'C:/Program Files (x86)
      \Atmel\Studio\7.0\Packs\atmel\ATmega_DFP\1.2.209\avrasm\inc\m4809def.inc'
 6
 7
 8                                    ; three_to_eight_decoder.asm
 9                                    ;
10                                    ; Created: 9/23/2020 9:29:18 AM
11                                    ; Author : user38x
12                                    ;
13
14                                    .list
15
16                                    ; Replace with your application code
17
18                                    start:
19  000000 e000                           ldi r16, 0x00
20  000001 ef1f                       ldi r17, 0xFF
21  000002 b91c                       out VPORTD_DIR, r17
22  000003 b900                       out VPORTA_DIR, r16
23  000004 b91d                       out VPORTD_OUT, r17
24
25                                    main:
26  000005 b102                       in r16, VPORTA_IN
27  000006 e020                       ldi r18, 0x00
28  000007 e031                       ldi r19, 0x01
29  000008 e040                       ldi r20, 0x00
30  000009 710c                       andi r16, 0x1C
31  00000a 3100                       cpi r16, 0x10
32  00000b f529                       brne output
33  00000c b102                       in r16, VPORTA_IN
34  00000d 2f10                       mov r17, r16
35  00000e 9512                       swap r17
36  00000f 9516                       lsr r17
37  000010 7017                       andi r17, 0x07
38  000011 3010                       cpi r17, 0x00
39  000012 f071                       breq zero
40  000013 3011                       cpi r17, 0x01
41  000014 f071                       breq one
42  000015 3012                       cpi r17, 0x02
43  000016 f071                       breq two
```

```
000017 3013                         cpi r17, 0x03
000018 f071                         breq three
000019 3014                         cpi r17, 0x04
00001a f071                         breq four
00001b 3015                         cpi r17, 0x05
00001c f071                         breq five
00001d 3016                         cpi r17, 0x06
00001e f071                         breq six
00001f 3017                         cpi r17, 0x07
000020 f071                         breq seven

                                zero:
000021 e041                         ldi r20, 0x01
000022 c00e                         rjmp output
                                one:
000023 e042                         ldi r20, 0x02
000024 c00c                         rjmp output
                                two:
000025 e044                         ldi r20, 0x04
000026 c00a                         rjmp output
                                three:
000027 e048                         ldi r20, 0x08
000028 c008                         rjmp output
                                four:
000029 e140                         ldi r20, 0x10
00002a c006                         rjmp output
                                five:
00002b e240                         ldi r20, 0x20
00002c c004                         rjmp output
                                six:
00002d e440                         ldi r20, 0x40
00002e c002                         rjmp output
                                seven:
00002f e840                         ldi r20, 0x80
000030 c000                         rjmp output

                                output:
000031 9540                         com r20
000032 b94d                         out VPORTD_OUT, r20
000033 cfd1                         rjmp main


RESOURCE USE INFORMATION
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Notice:
The register and instruction counts are symbol table hit counts,
and hence implicitly used resources are not counted, eg, the
'lpm' instruction without operands implicitly uses r0 and z,
```

```
 93  none of which are counted.
 94
 95  x,y,z are separate entities in the symbol table and are
 96  counted separately from r26..r31 here.
 97
 98  .dseg memory usage only counts static data declared with .byte
 99
100  "ATmega4809" register use summary:
101  x  :   0 y  :   0 z  :   0 r0 :   0 r1 :   0 r2 :   0 r3 :   0 r4 :   0
102  r5 :   0 r6 :   0 r7 :   0 r8 :   0 r9 :   0 r10:   0 r11:   0 r12:   0
103  r13:   0 r14:   0 r15:   0 r16:   7 r17:  15 r18:   1 r19:   1 r20:  11
104  r21:   0 r22:   0 r23:   0 r24:   0 r25:   0 r26:   0 r27:   0 r28:   0
105  r29:   0 r30:   0 r31:   0
106  Registers used: 5 out of 35 (14.3%)
107
108  "ATmega4809" instruction use summary:
109  .lds  :   0 .sts  :   0 adc   :   0 add   :   0 adiw  :   0 and   :   0
110  andi  :   2 asr   :   0 bclr  :   0 bld   :   0 brbc  :   0 brbs  :   0
111  brcc  :   0 brcs  :   0 break :   0 breq  :   8 brge  :   0 brhc  :   0
112  brhs  :   0 brid  :   0 brie  :   0 brlo  :   0 brlt  :   0 brmi  :   0
113  brne  :   1 brpl  :   0 brsh  :   0 brtc  :   0 brts  :   0 brvc  :   0
114  brvs  :   0 bset  :   0 bst   :   0 call  :   0 cbi   :   0 cbr   :   0
115  clc   :   0 clh   :   0 cli   :   0 cln   :   0 clr   :   0 cls   :   0
116  clt   :   0 clv   :   0 clz   :   0 com   :   1 cp    :   0 cpc   :   0
117  cpi   :   9 cpse  :   0 dec   :   0 des   :   0 eor   :   0 fmul  :   0
118  fmuls :   0 fmulsu:   0 icall :   0 ijmp  :   0 in    :   2 inc   :   0
119  jmp   :   0 ld    :   0 ldd   :   0 ldi   :  13 lds   :   0 lpm   :   0
120  lsl   :   0 lsr   :   1 mov   :   1 movw  :   0 mul   :   0 muls  :   0
121  mulsu :   0 neg   :   0 nop   :   0 or    :   0 ori   :   0 out   :   4
122  pop   :   0 push  :   0 rcall :   0 ret   :   0 reti  :   0 rjmp  :   9
123  rol   :   0 ror   :   0 sbc   :   0 sbci  :   0 sbi   :   0 sbic  :   0
124  sbis  :   0 sbiw  :   0 sbr   :   0 sbrc  :   0 sbrs  :   0 sec   :   0
125  seh   :   0 sei   :   0 sen   :   0 ser   :   0 ses   :   0 set   :   0
126  sev   :   0 sez   :   0 sleep :   0 spm   :   0 st    :   0 std   :   0
127  sts   :   0 sub   :   0 subi  :   0 swap  :   1 tst   :   0 wdr   :   0
128
129  Instructions used: 12 out of 114 (10.5%)
130
131  "ATmega4809" memory use summary [bytes]:
132  Segment   Begin    End      Code   Data   Used    Size   Use%
133  ----------------------------------------------------------------
134  [.cseg] 0x000000 0x000068    104      0    104   49152   0.2%
135  [.dseg] 0x002800 0x002800      0      0      0    6144   0.0%
136  [.eseg] 0x000000 0x000000      0      0      0     256   0.0%
137
138  Assembly complete, 0 errors, 0 warnings
139
```