```
 1
 2  AVRASM ver. 2.2.7  E:\ESE_280\$MyDocuments$\Atmel Studio\7.0\lab_4
      \four_bit_comparator\four_bit_comparator\main.asm Tue Sep 29 18:50:55 2020
 3
 4  E:\ESE_280\$MyDocuments$\Atmel Studio\7.0\lab_4\four_bit_comparator
      \four_bit_comparator\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\four_bit_comparator
      \four_bit_comparator\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                                    ; FourBitComparator.asm
 9                                    ;
10                                    ; Created: 9/23/2020 7:39:07 AM
11                                    ; Author : hp
12                                    ;
13
14                                    .list
15
16
17                                    ; Replace with your application code
18                                    start:
19  000000 e000                           ldi r16, 0x00
20  000001 b900                       out VPORTA_DIR, r16
21  000002 ef0f                       ldi r16, 0xFF
22  000003 b90c                       out VPORTD_DIR, r16
23  000004 e000                       ldi r16, 0x00
24  000005 b90d                       out VPORTD_OUT, r16
25
26                                    main:
27  000006 b102                       in r16, VPORTA_IN
28  000007 2f10                       mov r17, r16
29  000008 2f20                       mov r18, r16
30  000009 7f10                       andi r17, 0xF0
31  00000a 702f                       andi r18, 0x0F
32  00000b 9516                       lsr r17
33  00000c 9516                       lsr r17
34  00000d 9516                       lsr r17
35  00000e 9516                       lsr r17
36  00000f 0712                       cpc r17, r18
37  000010 f011                       breq equal
38  000011 f420                       brsh greater
39  000012 f030                       brlo less
40
41                                    equal:
42  000013 e430                       ldi r19, 0x40
43  000014 b93d                       out VPORTD_OUT, r19
44  000015 cff0                       rjmp main
```

```
                                greater:
000016 e830                        ldi r19, 0x80
000017 b93d                        out VPORTD_OUT, r19
000018 cfed                        rjmp main

                                less:
000019 e230                        ldi r19, 0x20
00001a b93d                        out VPORTD_OUT, r19
00001b cfea                        rjmp main



RESOURCE USE INFORMATION
------------------------

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,
none of which are counted.

x,y,z are separate entities in the symbol table and are
counted separately from r26..r31 here.

.dseg memory usage only counts static data declared with .byte

"ATmega4809" register use summary:
x  :   0 y  :   0 z  :   0 r0 :   0 r1 :   0 r2 :   0 r3 :   0 r4 :   0
r5 :   0 r6 :   0 r7 :   0 r8 :   0 r9 :   0 r10:   0 r11:   0 r12:   0
r13:   0 r14:   0 r15:   0 r16:   9 r17:   7 r18:   3 r19:   6 r20:   0
r21:   0 r22:   0 r23:   0 r24:   0 r25:   0 r26:   0 r27:   0 r28:   0
r29:   0 r30:   0 r31:   0
Registers used: 4 out of 35 (11.4%)

"ATmega4809" instruction use summary:
.lds  :   0 .sts  :   0 adc   :   0 add   :   0 adiw  :   0 and   :   0
andi  :   2 asr   :   0 bclr  :   0 bld   :   0 brbc  :   0 brbs  :   0
brcc  :   0 brcs  :   0 break :   0 breq  :   1 brge  :   0 brhc  :   0
brhs  :   0 brid  :   0 brie  :   0 brlo  :   1 brlt  :   0 brmi  :   0
brne  :   0 brpl  :   0 brsh  :   1 brtc  :   0 brts  :   0 brvc  :   0
brvs  :   0 bset  :   0 bst   :   0 call  :   0 cbi   :   0 cbr   :   0
clc   :   0 clh   :   0 cli   :   0 cln   :   0 clr   :   0 cls   :   0
clt   :   0 clv   :   0 clz   :   0 com   :   0 cp    :   0 cpc   :   1
cpi   :   0 cpse  :   0 dec   :   0 des   :   0 eor   :   0 fmul  :   0
fmuls :   0 fmulsu:   0 icall :   0 ijmp  :   0 in    :   1 inc   :   0
jmp   :   0 ld    :   0 ldd   :   0 ldi   :   6 lds   :   0 lpm   :   0
lsl   :   0 lsr   :   4 mov   :   2 movw  :   0 mul   :   0 muls  :   0
```

```
 94  mulsu :   0 neg   :   0 nop   :   0 or    :   0 ori   :   0 out   :   6
 95  pop   :   0 push  :   0 rcall :   0 ret   :   0 reti  :   0 rjmp  :   3
 96  rol   :   0 ror   :   0 sbc   :   0 sbci  :   0 sbi   :   0 sbic  :   0
 97  sbis  :   0 sbiw  :   0 sbr   :   0 sbrc  :   0 sbrs  :   0 sec   :   0
 98  seh   :   0 sei   :   0 sen   :   0 ser   :   0 ses   :   0 set   :   0
 99  sev   :   0 sez   :   0 sleep :   0 spm   :   0 st    :   0 std   :   0
100  sts   :   0 sub   :   0 subi  :   0 swap  :   0 tst   :   0 wdr   :   0
101
102  Instructions used: 11 out of 114 (9.6%)
103
104  "ATmega4809" memory use summary [bytes]:
105  Segment   Begin    End      Code   Data   Used    Size   Use%
106  ----------------------------------------------------------------
107  [.cseg] 0x000000 0x000038     56      0     56   49152   0.1%
108  [.dseg] 0x002800 0x002800      0      0      0    6144   0.0%
109  [.eseg] 0x000000 0x000000      0      0      0     256   0.0%
110
111  Assembly complete, 0 errors, 0 warnings
112
```