Experiment 6

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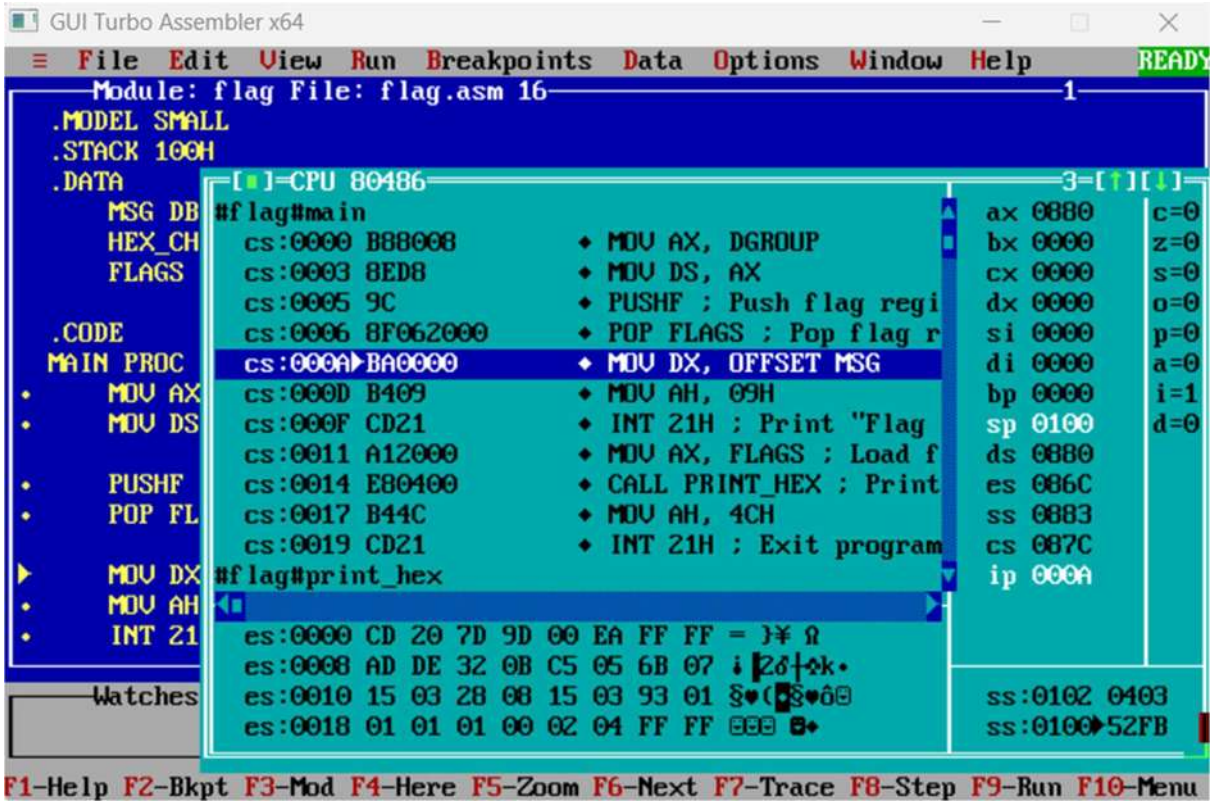
```
.MODEL SMALL
.STACK 100H
.DATA
    MSG DB 'Flag Register: $'   ; Message to display
    HEX_CHARS DB '0123456789ABCDEF'  ; Lookup table for hex digits
    FLAGS DW ?   ; Variable to store flag register value

.CODE
MAIN PROC
    MOV AX, DGROUP
    MOV DS, AX

    PUSHF        ; Push flag register onto the stack
    POP FLAGS     ; Pop flag register into FLAGS variable

    MOV DX, OFFSET MSG
    MOV AH, 09H
    INT 21H       ; Print "Flag Register: "

    MOV AX, FLAGS  ; Load flag register value into AX
    CALL PRINT_HEX ; Print the flag register in hexadecimal format

    MOV AH, 4CH
```

```
    INT 21H       ; Exit program
MAIN ENDP

; --------------------------
; Print 16-bit Hex Procedure
; --------------------------
PRINT_HEX PROC
    MOV CX, 4     ; We have 4 hex digits (16-bit / 4-bit each)
    MOV BX, 12    ; Bit shift amount (12, 8, 4, 0)

HEX_LOOP:
    MOV DX, AX    ; Copy AX value
    MOV CL, BL    ; Move shift count into CL (Fix for SHR error)
    SHR DX, CL    ; Shift right to isolate one hex digit
    AND DX, 0FH   ; Mask the lower 4 bits
    MOV SI, DX    ; Move index to SI
    MOV DL, [HEX_CHARS + SI] ; Convert to ASCII hex character
    MOV AH, 02H
    INT 21H       ; Print the hex digit
    SUB BX, 4     ; Move to the next hex digit
    LOOP HEX_LOOP ; Repeat until all digits are printed

    RET
PRINT_HEX ENDP

END MAIN
```

OUTPUT:


GUI Turbo Assembler x64
File Edit View Run Breakpoints Data Options Window Help
READY
Module: flag File: flag.asm 16
.MODEL SMALL
.STACK 100H
.DATA
MSG DB
HEX_CH
FLAGS
.CODE
MAIN PROC
MOV AX
MOV DS
PUSHF
POP FL
MOV DX
MOV AH
INT 21
Watches
CPU 80486
#flag#main
cs:0000 B88008 MOV AX, DGROUP
cs:0003 8ED8 MOV DS, AX
cs:0005 9C PUSHF ; Push flag regi
cs:0006 8F062000 POP FLAGS ; Pop flag r
cs:000A BA0000 MOV DX, OFFSET MSG
cs:000D B409 MOV AH, 09H
cs:000F CD21 INT 21H ; Print "Flag
cs:0011 A12000 MOV AX, FLAGS ; Load f
cs:0014 E80400 CALL PRINT_HEX ; Print
cs:0017 B44C MOV AH, 4CH
cs:0019 CD21 INT 21H ; Exit program
#flag#print_hex
es:0000 CD 20 7D 9D 00 EA FF FF
es:0008 AD DE 32 0B C5 05 6B 07
es:0010 15 03 28 08 15 03 93 01
es:0018 01 01 01 00 02 04 FF FF
ax 0880
bx 0000
cx 0000
dx 0000
si 0000
di 0000
bp 0000
sp 0100
ds 0880
es 086C
ss 0883
cs 087C
ip 000A
c=0
z=0
s=0
o=0
p=0
a=0
i=1
d=0
ss:0102 0403
ss:0100 52FB
F1-Help F2-Bkpt F3-Mod F4-Here F5-Zoom F6-Next F7-Trace F8-Step F9-Run F10-Menu