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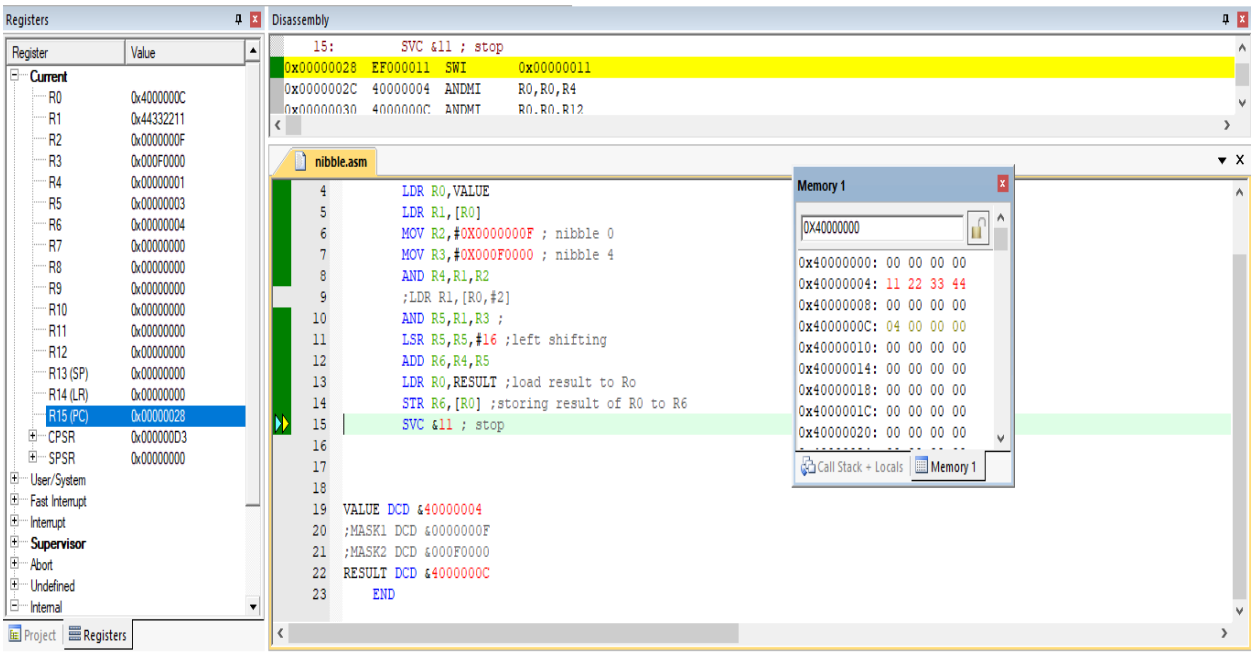
Reg_no:211039002

Program 1:

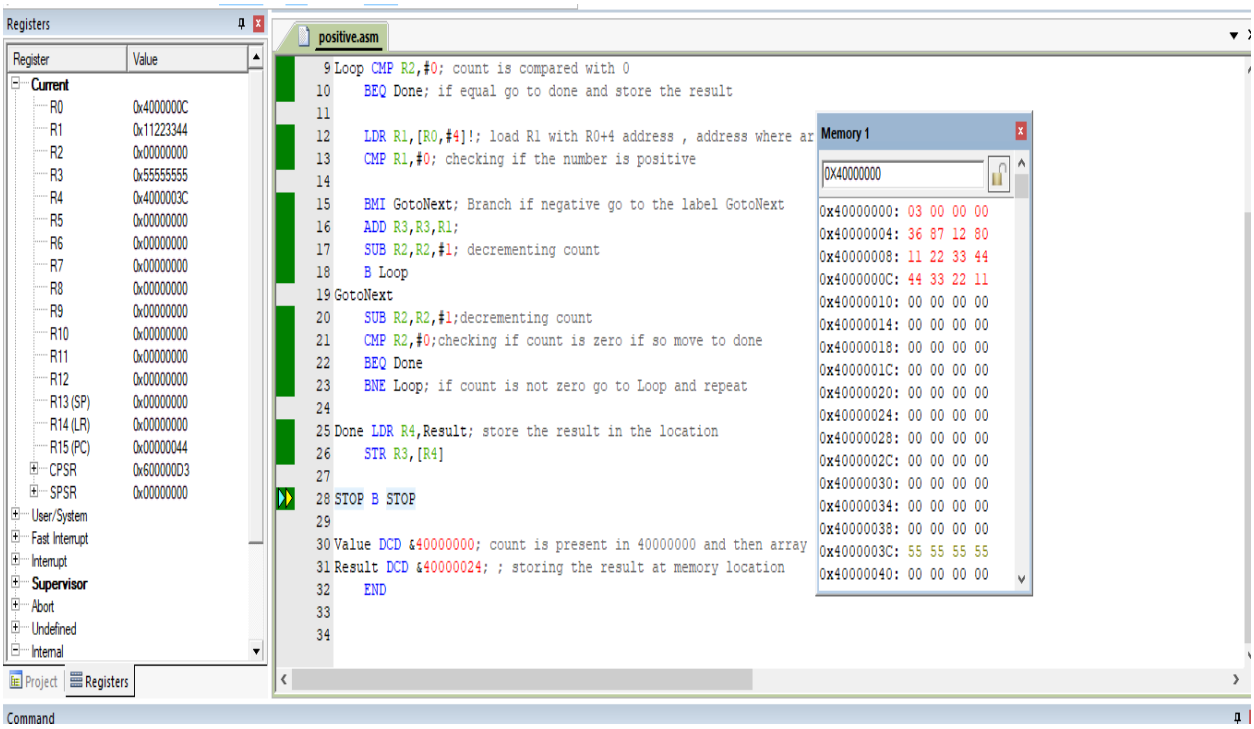
```
        AREA NIBBLE_ADD,CODE,READONLY
        ENTRY
MAIN
    LDR R0,VALUE
    LDR R1,[R0]
    MOV R2,#0X0000000F ; nibble 0
    MOV R3,#0X000F0000 ; nibble 4
    AND R4,R1,R2
    ;LDR R1,[R0,#2]
    AND R5,R1,R3 ;
    LSR R5,R5,#16 ;left shifting
    ADD R6,R4,R5
    LDR R0,RESULT ;load result to Ro
    STR R6,[R0] ;storing result of R0 to R6
    SVC &11 ; stop

VALUE DCD &40000004
;MASK1 DCD &0000000F
;MASK2 DCD &000F0000
RESULT DCD &4000000C
  END
```



Program 2:

```
        AREA add_positive,CODE,READONLY
        ENTRY
main
        LDR R0,Value
        LDR R2,[R0]; count present at R0 is loaded to R2

        EOR R3,R3,R3; clearing the R3, perform XOR

Loop CMP R2,#0; count is compared with 0
        BEQ Done; if equal go to done and store the result

        LDR R1,[R0,#4]!; load R1 with R0+4 address , address where array elements starts
        CMP R1,#0; checking if the number is positive

        BMI GotoNext; Branch if negative go to the label GotoNext
```

```
        ADD R3,R3,R1;
        SUB R2,R2,#1; decrementing count
        B Loop
GotoNext
        SUB R2,R2,#1;decrementing count
        CMP R2,#0;checking if count is zero if so move to done
        BEQ Done
        BNE Loop; if count is not zero go to Loop and repeat

Done LDR R4,Result; store the result in the location
        STR R3,[R4]

STOP B STOP

Value DCD &40000000; count is present in 40000000 and then array starts from 40000004
Result DCD &40000024; ; storing the result at memory location
        END
```


Registers
Register
Value
Current
R0 0x4000000C
R1 0x11223344
R2 0x00000000
R3 0x55555555
R4 0x4000003C
R5 0x00000000
R6 0x00000000
R7 0x00000000
R8 0x00000000
R9 0x00000000
R10 0x00000000
R11 0x00000000
R12 0x00000000
R13 (SP) 0x00000000
R14 (LR) 0x00000000
R15 (PC) 0x00000044
CPSR 0x600000D3
SPSR 0x00000000
User/System
Fast Interrupt
Interrupt
Supervisor
Abort
Undefined
Internal
Project
Registers
positive.asm
9 Loop CMP R2,#0; count is compared with 0
10 BEQ Done; if equal go to done and store the result
11
12 LDR R1,[R0,#4]!; load R1 with R0+4 address , address where ar
13 CMP R1,#0; checking if the number is positive
14
15 BMI GotoNext; Branch if negative go to the label GotoNext
16 ADD R3,R3,R1;
17 SUB R2,R2,#1; decrementing count
18 B Loop
19 GotoNext
20 SUB R2,R2,#1;decrementing count
21 CMP R2,#0;checking if count is zero if so move to done
22 BEQ Done
23 BNE Loop; if count is not zero go to Loop and repeat
24
25 Done LDR R4,Result; store the result in the location
26 STR R3,[R4]
27
28 STOP B STOP
29
30 Value DCD &40000000; count is present in 40000000 and then array
31 Result DCD &40000024; ; storing the result at memory location
32 END
33
34
Memory 1
0x40000000
0x40000000: 03 00 00 00
0x40000004: 36 87 12 80
0x40000008: 11 22 33 44
0x4000000C: 44 33 22 11
0x40000010: 00 00 00 00
0x40000014: 00 00 00 00
0x40000018: 00 00 00 00
0x4000001C: 00 00 00 00
0x40000020: 00 00 00 00
0x40000024: 00 00 00 00
0x40000028: 00 00 00 00
0x4000002C: 00 00 00 00
0x40000030: 00 00 00 00
0x40000034: 00 00 00 00
0x40000038: 00 00 00 00
0x4000003C: 55 55 55 55
0x40000040: 00 00 00 00
Command