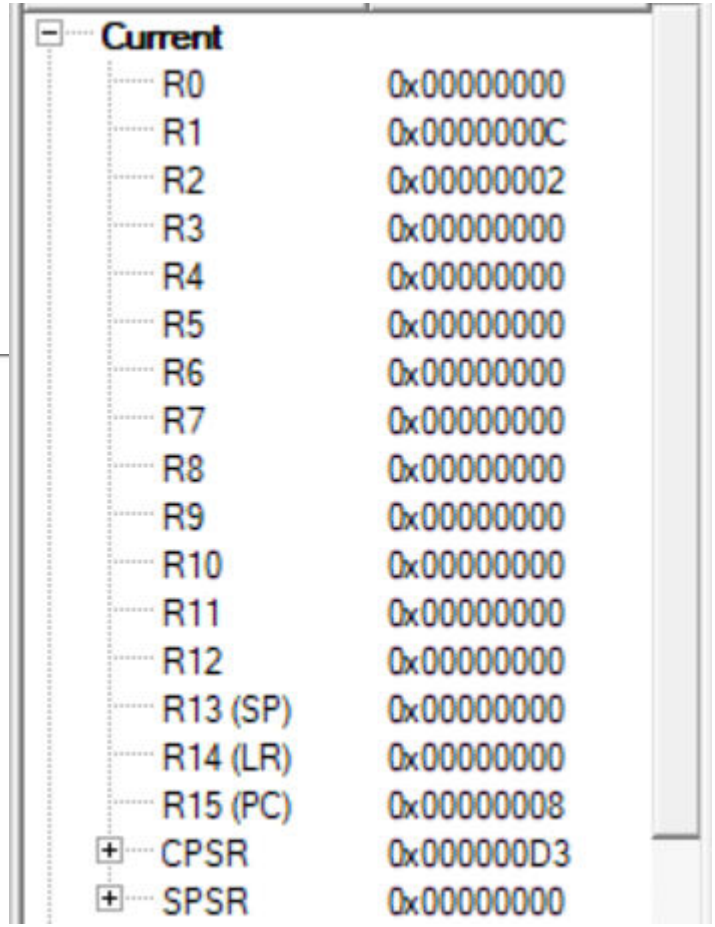
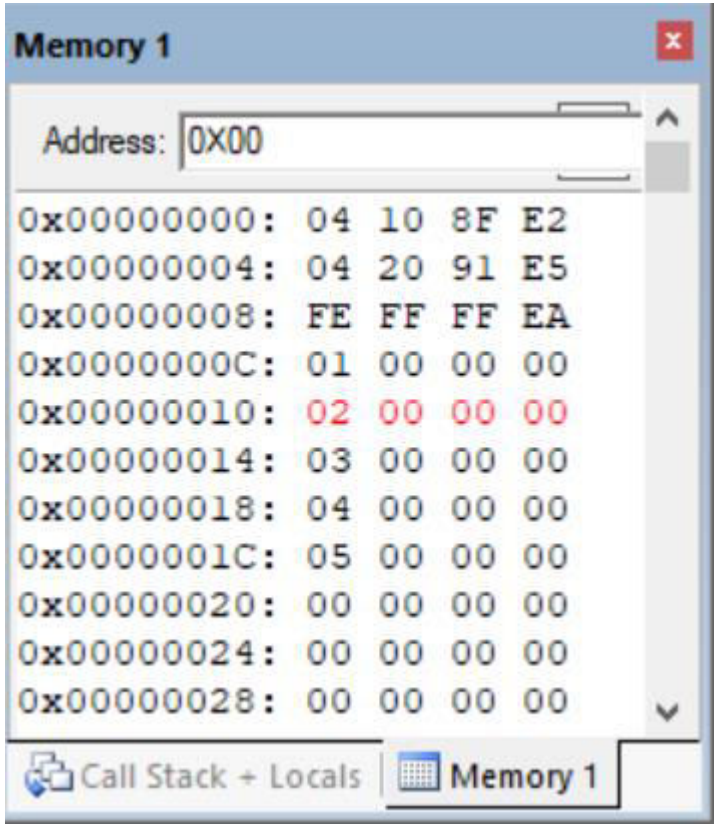
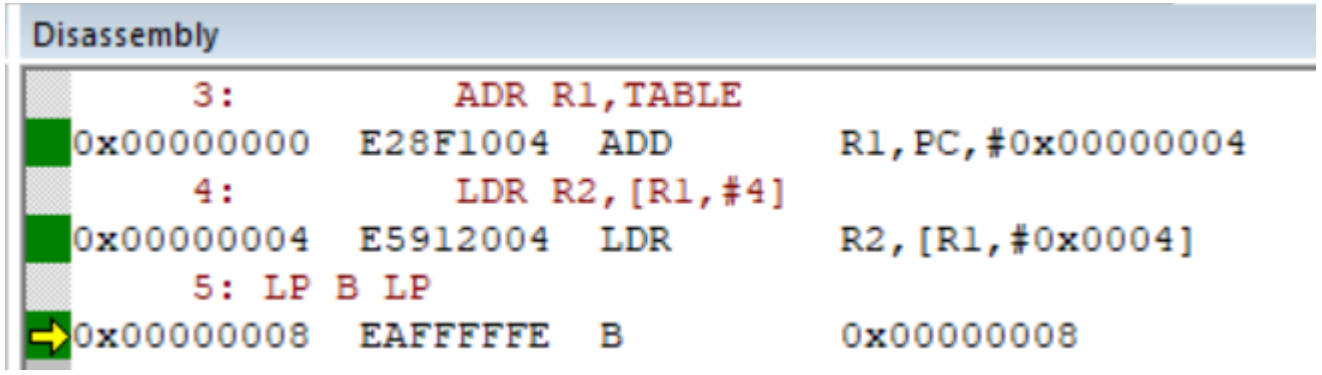
Data Transfer Instruction-Keil Simulation

Pre-indexing

```
1      AREA PRE_INDEX,CODE,READONLY
2  ENTRY
3      ADR R1,TABLE
4      LDR R2,[R1,#4]
5  LP B LP
6
7
8  TABLE DCD 1,2,3,4,5
9      END
```

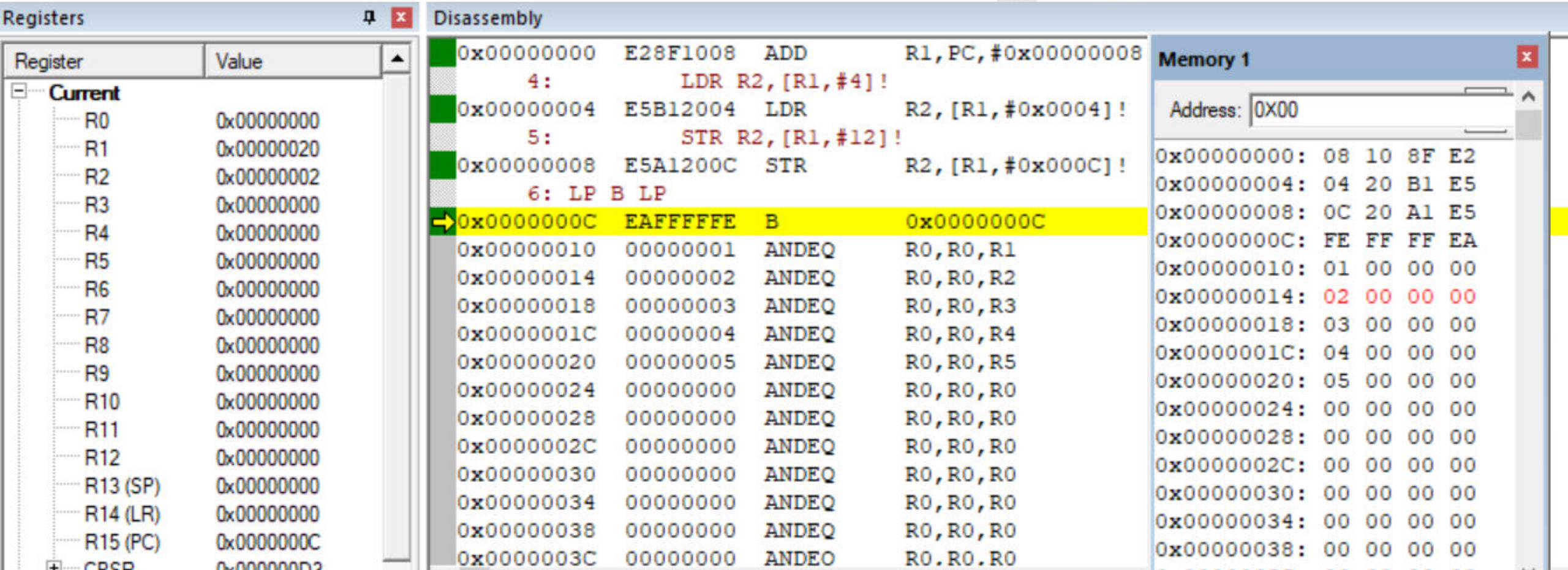






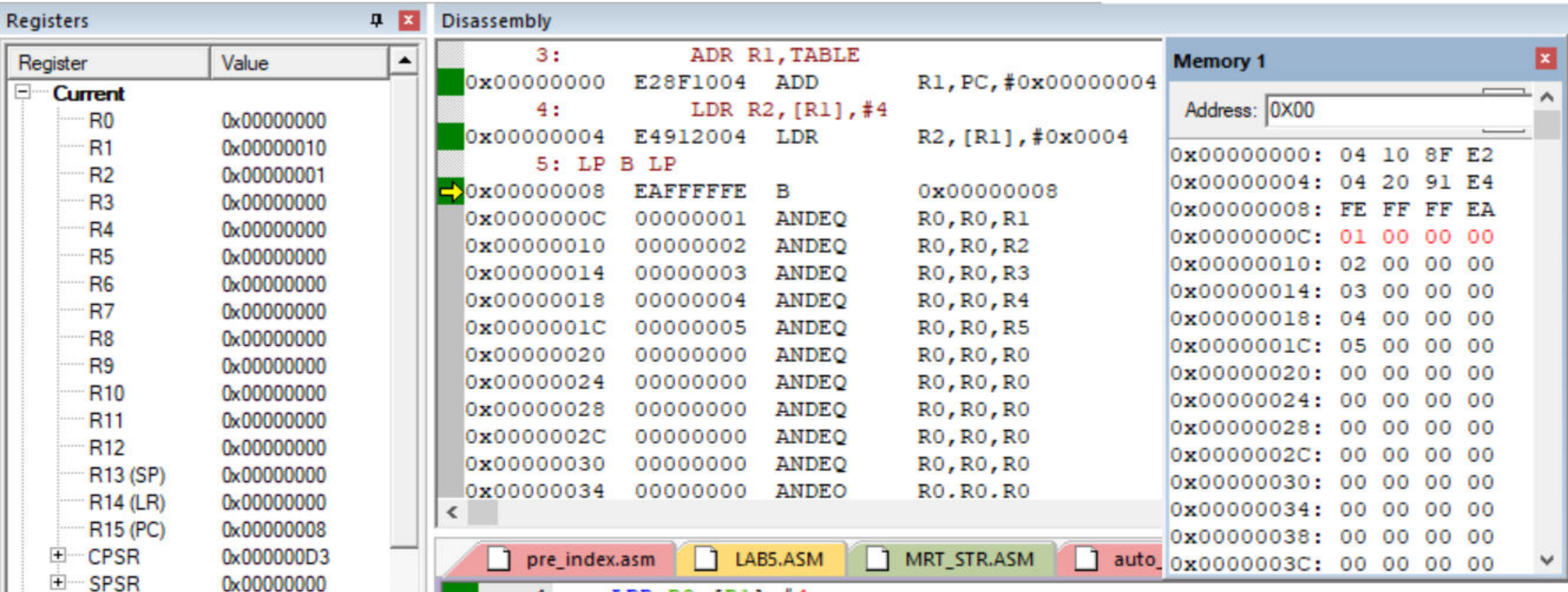
Auto-indexing

```
1     AREA AUTO_INDEX,CODE,READONLY
2 ENTRY
3     ADR R1,TABLE
4     LDR R2,[R1,#4]!
5     STR R2,[R1,#12]!
6 LP B LP
7
8
9 TABLE DCD 1,2,3,4,5
10    END
```



Post-indexing

```
1      AREA POST_INDEX,CODE,READONLY
2  ENTRY
3      ADR R1,TABLE
4      LDR R2,[R1],#4
5  LP B LP
6
7
8  TABLE DCD 1,2,3,4,5
9      END
```



Multiple Register Transfer – Load Instruction

```
1      AREA MGT_LD,CODE,READONLY
2  ENTRY
3      ADR R1,TABLE
4      LDMIA R1,{R2-R6}
5  LP B LP
6
7
8  TABLE DCD 1,2,3,4,5
9      END
```

Registers

Register	Value
Current	
R0	0x00000000
R1	0x0000000C
R2	0x00000001
R3	0x00000002
R4	0x00000003
R5	0x00000004
R6	0x00000005
R7	0x00000000
R8	0x00000000
R9	0x00000000
R10	0x00000000
R11	0x00000000
R12	0x00000000
R13 (SP)	0x00000000
R14 (LR)	0x00000000
R15 (PC)	0x00000008
CPSR	0x000000D3

Disassembly

```
      3:          ADR R1,TABLE
0x00000000  E28F1004  ADD       R1,PC,#0x00000004
      4:          LDMIA R1,{R2-R6}
0x00000004  E891007C  LDMIA     R1,{R2-R6}
      5: LP B LP
0x00000008  EAFFFFFE  B         0x00000008
0x0000000C  00000001  ANDEQ     R0,R0,R1
0x00000010  00000002  ANDEQ     R0,R0,R2
0x00000014  00000003  ANDEQ     R0,R0,R3
0x00000018  00000004  ANDEQ     R0,R0,R4
0x0000001C  00000005  ANDEQ     R0,R0,R5
0x00000020  00000000  ANDEQ     R0,R0,R0
0x00000024  00000000  ANDEQ     R0,R0,R0
0x00000028  00000000  ANDEQ     R0,R0,R0
0x0000002C  00000000  ANDEQ     R0,R0,R0
0x00000030  00000000  ANDEQ     R0,R0,R0
0x00000034  00000000  ANDEQ     R0,R0,R0
0x00000038  00000000  ANDEQ     R0,R0,R0
0x0000003C  00000000  ANDEQ     R0,R0,R0
```

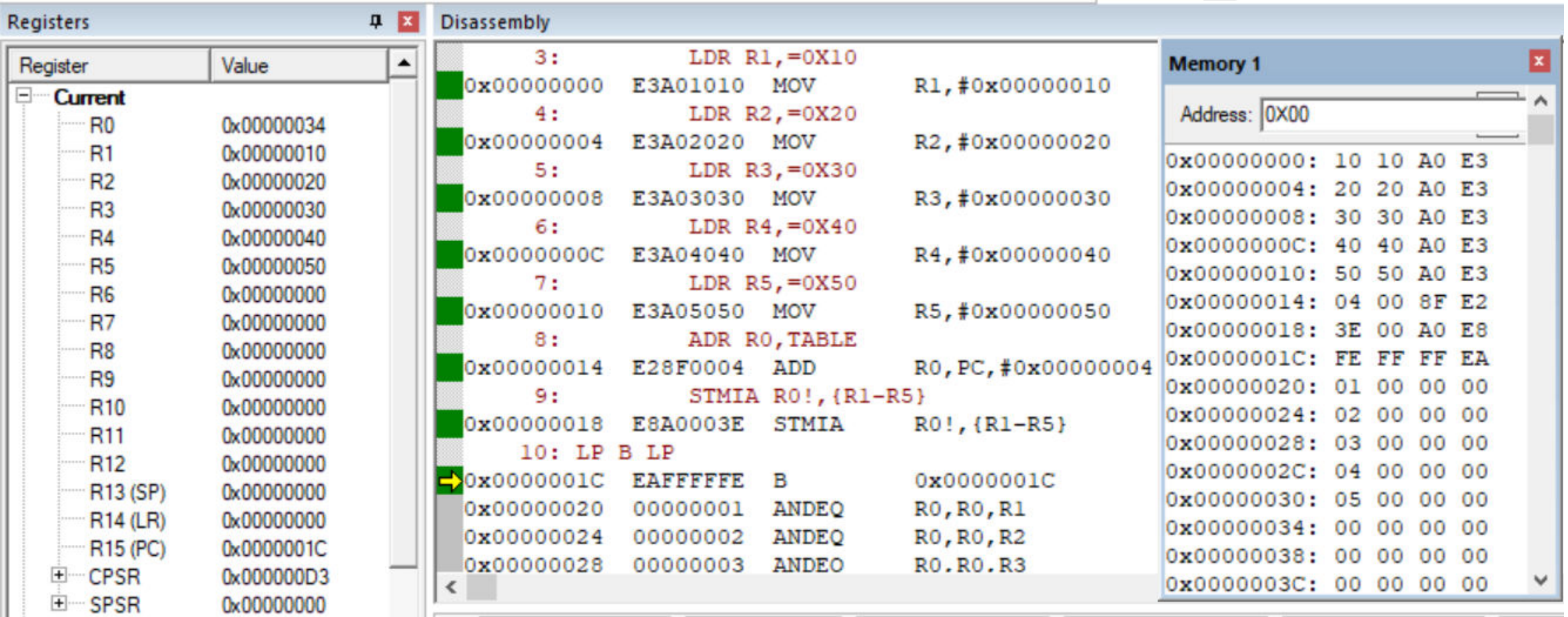
Memory 1

Address: 0X00

```
0x00000000: 04 10 8F E2
0x00000004: 7C 00 91 E8
0x00000008: FE FF FF EA
0x0000000C: 01 00 00 00
0x00000010: 02 00 00 00
0x00000014: 03 00 00 00
0x00000018: 04 00 00 00
0x0000001C: 05 00 00 00
0x00000020: 00 00 00 00
0x00000024: 00 00 00 00
0x00000028: 00 00 00 00
0x0000002C: 00 00 00 00
0x00000030: 00 00 00 00
0x00000034: 00 00 00 00
0x00000038: 00 00 00 00
0x0000003C: 00 00 00 00
```

Multiple Register Transfer – Store Instruction

```
1      AREA MGT_STR,CODE,READONLY
2  ENTRY
3      LDR R1,=0X10
4      LDR R2,=0X20
5      LDR R3,=0X30
6      LDR R4,=0X40
7      LDR R5,=0X50
8      ADR R0,TABLE
9      STMIA R0!,{R1-R5}
10 LP B LP
11
12
13 TABLE DCD 1,2,3,4,5
14     END
```



Thank you