

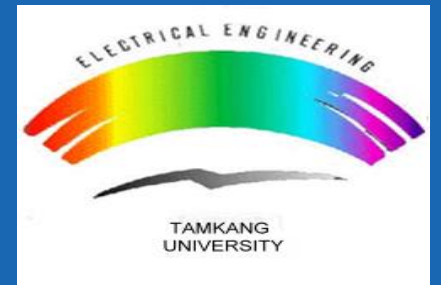
第09次組語實習課

學生：林培瑋

2023 Advanced Mixed-Operation System (AMOS) Lab.



Tamkang University
Department of Electrical and Computer Engineering
No.151, Yingzhuan Rd., Tamsui Dist., New Taipei City 25137, Taiwan (R.O.C.)

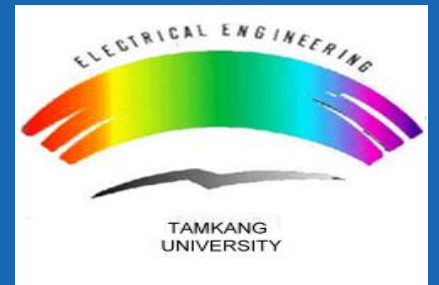


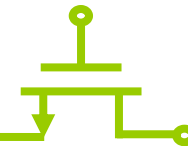
期中上機考

2023 Advanced Mixed-Operation System (AMOS) Lab.



Tamkang University
Department of Electrical and Computer Engineering
No.151, Yingzhuan Rd., Tamsui Dist., New Taipei City 25137, Taiwan (R.O.C.)





- ❖ 第1題(25%)：共5小題，一題5%。
- ❖ 第2題(25%)：共5小題，一題5%。
- ❖ 第3題(50%)：共9小題。
 - 第1小題：10%
 - Point out each stored value from the memory window(5%)
 - write down the address of each variable (data1~data5)(5%)
 - 第2~9小題：40%。(一小題5%)

不計分

程式碼沒有學號、姓名

暫存器模糊不清楚

暫存器視窗沒拉開

暫存器數值不正確

➤ 以最後繳交的版本為準

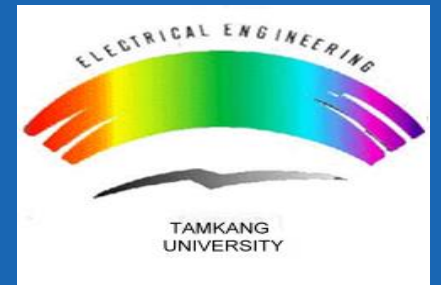


第1大題

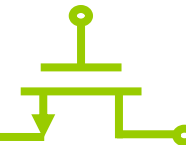
2023 Advanced Mixed-Operation System (AMOS) Lab.



Tamkang University
Department of Electrical and Computer Engineering
No.151, Yingzhuan Rd., Tamsui Dist., New Taipei City 25137, Taiwan (R.O.C.)



1.初始化



Registers

Register	Value
R0	0x40000000
R1	0xBEEFFACE
R2	0x00000000
R3	0x00000000
R4	0x00000000
R5	0x00000000
R6	0x00000000
R7	0x00000000
R8	0x00000000
R9	0x00000000
R10	0x00000000
R11	0x00000000
R12	0x00000000
R13 (SP)	0x00000000
R14 (LR)	0x00000000
R15 (PC)	0x0000000C
CPSR	0x000000D3
SPSR	0x00000000
UserSystem	
Fast Interrupt	
Interrupt	
Supervisor	
Abort	
Undefined	
Internal	
PC \$	0x0000000C
Mode	Supervisor
States	6
Sec	0.00000050

Disassembly

```

0x00000008 E5801000 STR R1,[R0]
14: LDR r9,[r0]
->0x0000000C E5909000 LDR R9,[R0]
15: LDR r2,=0x8765
0x00000010 E59F208C LDR R2,[PC,#0x008C]
16: LDR r3,=0x0FFF000
0x00000014 E59F208C LDR R2,[PC,#0x008C]

```

TEST1.s

```

1 AREA LIN612450097, CODE, READONLY
2 ENTRY
3 ;*****
4 ; 1.Assume a 32-bit word at memory address 0x40000000 contains 0xBEEFFACE.
5 ; Write a program (including 5 independent steps below) to
6 ;*****
7 LDR r0,=0x40000000
8 LDR r1,=0xBEEFFACE
9 STR r1,[r0]
10 ;*****
11 ; (1)insert the value 0x8765 into the word
12 ; so that the final value is 0xB8765ACE.
13 ;*****
14 LDR r9,[r0]
15 LDR r2,=0x8765
16 LDR r3,=0x0FFF000
17 BIC r9,r3
18 ORR r9,r2,LSL #12
19 STR r9,[r0]
20 ;*****
21 ; (2)set bits 5, 9, 13 and 17 of the word
22 ; and leave the remaining bits unchanged
23 ;*****
24 LDR r0,=0x40000000
25 LDR r1,=0xBEEFFACE
26 STR r1,[r0]
27 LDR r9,[r0]
28 LDR r4,=0x22220 ;0b0010 0010 0010 0010 0000
29 ORR r9,r4
30 STR r9,[r0]
31 ;*****
32 ; (3)use one way to clear bits 7, 10, and 16 of the word
33 ; and leave the remaining bits unchanged.
34 ;*****

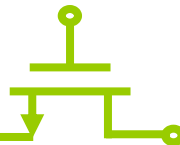
```

Memory 1

Address: 0x40000000

0x40000000:	CE FA EF BE	00 00
0x40000021:	00 00	
0x40000042:	00 00	
0x40000063:	00 00	

Call Stack + Locals | Memory 1



小算盤

程式設計人員

BEEF FACE

HEX BEEF FACE

DEC 3,203,398,350

OCT 27 673 775 316

BIN 1011 1110 1110 1111 1111 1010 1100 1110

QWORD MS M

位元 位元移位

A	<<	>>	CE	<X
B	()	%	÷
C	7	8	9	×
D	4	5	6	-
E	1	2	3	+
F	+/-	0	.	=

Registers

Register	Value
R0	0x40000000
R1	0xBEEFFACE
R2	0x00008765
R3	0x00000000
R4	0x00000000
R5	0x00000000
R6	0x00000000
R7	0x00000000
R8	0x00000000
R9	0xB8765ACE
R10	0x00000000
R11	0x00000000
R12	0x00000000
R13 (SP)	0x00000000
R14 (LR)	0x00000000
R15 (PC)	0x00000024
CPSR	0x000000D3
SPSR	0x00000000
UserSystem	
Fast Interrupt	
Interrupt	
Supervisor	
Abort	
Undefined	
Internal	
PC \$	0x00000024
Mode	Supervisor
States	19
Sec	0.00000158

Disassembly

```

0x00000020 E5809000 STR R9,[R0]
24: LDR r0,=0x40000000
0x00000024 E3A00101 MOV R0,#0x40000000
25: LDR r1,=0xBEEFFACE
0x00000028 E59F1070 LDR R1,[PC,#0x0070]
26: STR r1,[r0]
0x0000002C E5809000 STR R9,[R0]

```

TEST1.s

```

10 ;*****
11 ; (1)insert the value 0x8765 into the word
12 ; so that the final value is 0xB8765ACE.
13 ;*****
14 LDR r9,[r0]
15 LDR r2,=0x8765
16 LDR r3,=0x00000000
17 BIC r9,r3
18 ORR r9,r2,LSL #12
19 STR r9,[r0]
20 ;*****
21 ; (2)set bits 5, 9, 13 and 17 of the word
22 ; and leave the remaining bits unchanged
23 ;*****
24 LDR r0,=0x40000000
25 LDR r1,=0xBEEFFACE
26 STR r1,[r0]
27 LDR r9,[r0]
28 LDR r4,=0x22220 ;0b0010 0010 0010 0000
29 ORR r9,r4
30 STR r9,[r0]
31 ;*****
32 ; (3)use one way to clear bits 7, 10, and 16 of the word
33 ; and leave the remaining bits unchanged.
34 ;*****
35 LDR r0,=0x40000000
36 LDR r1,=0xBEEFFACE
37 STR r1,[r0]
38 LDR r9,[r0]
39 LDR r5,=0x10480 ;0b0001 0000 0100 1000 0000
40 BIC r9,r5
41 STR r9,[r0]
42 ;*****
43 ; (4)use another way to clear bits 7, 10, and 16 of the word

```

Memory 1

Address: 0x40000000

0x40000000:	CE 5A 76 B8	00 00
0x40000021:	00 00	
0x40000042:	00 00	
0x40000063:	00 00	

Call Stack + Locals Memory 1

小算盤

程式設計人員

B876 5ACE

HEX B876 5ACE

DEC 3,094,764,238

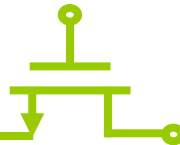
OCT 27 035 455 316

BIN 1011 1000 0111 0110 0101 1010 1100 1110

QWORD MS M

位元 位元移位

A	<<	>>	CE	<X
B	()	%	÷
C	7	8	9	×
D	4	5	6	-
E	1	2	3	+
F	+/-	0	.	=



小算盤

程式設計人員

BEEF FAEF

HEX BEEF FAEF

DEC 3,203,398,382

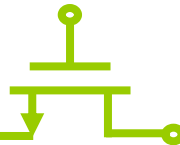
OCT 27 673 775 356

BIN 1011 1110 1110 1111 1111 1010 1110 1110

BIN 1011 1110 1110 1111 1111 1010 1110 1110

位元 位元移位

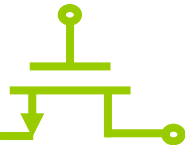
A	<<	>>	CE	⌫
B	()	%	÷
C	7	8	9	×
D	4	5	6	—
E	1	2	3	+
F	+/-	0	.	=



The image shows a Windows calculator application in Programmer mode. The title bar reads "小算盤" (Small Calculator). The menu bar includes "程式設計人員" (Programmer). The main display shows the value "BEEE FA4E". Below the display, the conversion results are listed:

- HEX BEEE FA4E
- DEC 3,203,332,686
- OCT 27 673 575 116
- BIN 1011 1110 1110 1110 1111 1010 0100 1110
- BIN 1011 1110 1110 1111 1111 1010 1100 1110**

The binary result is highlighted in black. Below the display, there are buttons for "位元" (Bit), "位元移位" (Bit Shift), and a "D" button. At the bottom, there is a numeric keypad with buttons for digits 0-9, "+/-", and "=", along with function buttons for "<<", ">>", "CE", and "<X".



小算盤

程式設計人員

BEEF FACE

HEX BEEF FACE
DEC 3,203,398,350
OCT 27 673 775 316
BIN 1011 1110 1110 1111 1111 1010 1100 1110

QWORD MS M*

位元 位元移位

A	<<	>>	CE	<X
B	()	%	÷
C	7	8	9	×
D	4	5	6	-
E	1	2	3	+
F	+/-	0	.	=

Registers

Register	Value
R0	0x40000000
R1	0xBEEFFACE
R2	0x00008765
R3	0x0FFFF000
R4	0x00022220
R5	0xFFFEFB7F
R6	0x00000000
R7	0xFFFFFFFF
R8	0x00000000
R9	0xBEEFFA4E
R10	0x00000000
R11	0x00000000
R12	0x00000000
R13 (SP)	0x00000000
R14 (LR)	0x00000000
R15 (PC)	0x00000080
CPSR	0x000000D3
SPSR	0x00000000
UserSystem	
Fast Interrupt	
Interrupt	
Supervisor	
Abort	
Undefined	
Internal	
PC \$	0x00000080
Mode	Supervisor
States	66
Sec	0.00000550

Disassembly

```

0x0000007C E5809000 STR R9, [R0]
59: LDR r0, =0x40000000
0x00000080 E3A00101 MOV R0, #0x40000000
60: LDR r1, =0xBEEFFACE
0x00000084 E59F1014 LDR R1, [PC, #0x0014]
61: STR r1, [r0]
0x00000088 E5801000 STR R1, [R0]

TEST1.s
35 LDR r0, =0x40000000
36 LDR r1, =0xBEEFFACE
37 STR r1, [r0]
38 LDR r9, [r0]
39 LDR r5, =0x10480 ;0b0001 0000 0100 1000 0000
40 BIC r9, r5
41 STR r9, [r0]
42 ;*****
43 ; (4)use another way to clear bits 7, 10, and 16 of the word
44 ; and leave the remaining bits unchanged.
45 ;*****
46 LDR r0, =0x40000000
47 LDR r1, =0xBEEFFACE
48 STR r1, [r0]
49 LDR r9, [r0]
50 LDR r5, =0x10480 ;0b0001 0000 0100 1000 0000
51 LDR r7, =0xFFFFFFFF
52 EOR r5, r7
53 AND r9, r5
54 STR r9, [r0]
55 ;*****
56 ; (5)change bits 18, 25, and 26 of the word
57 ; and leave the remaining bits unchanged.
58 ;*****
59 LDR r0, =0x40000000
60 LDR r1, =0xBEEFFACE
61 STR r1, [r0]
62 LDR r9, [r0]
63 LDR r6, =0x6040000 ;0b0110 0000 0100 0000 0000 0000
64 EOR r9, r6
65 STR r9, [r0]
66
67 STOP B STOP
68 END
    
```

Memory 1

Address: 0x40000000

```

0x40000000: 4E FA EE BE 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x40000021: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x40000042: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x40000063: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
    
```

Call Stack + Locals Memory 1

小算盤

程式設計人員

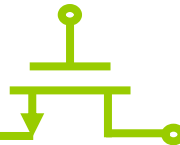
BEEE FA4E

HEX BEEE FA4E
DEC 3,203,332,686
OCT 27 673 575 116
BIN 1011 1110 1110 1111 1111 1010 0100 1110

QWORD MS M*

位元 位元移位

A	<<	>>	CE	<X
B	()	%	÷
C	7	8	9	×
D	4	5	6	-
E	1	2	3	+
F	+/-	0	.	=



小算盤

程式設計人員

B8EB FACE

HEX B8EB FACE

DEC 3,102,472,910

OCT 27 072 775 316

BIN 1011 1000 1110 1011 1111 1010 1100 1110

BIN 1011 1110 1110 1111 1111 1010 1100 1110

位元 位移

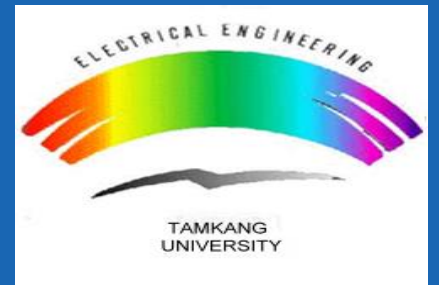
A	<<	>>	CE	⌫
B	()	%	÷
C	7	8	9	×
D	4	5	6	-
E	1	2	3	+
F	+/-	0	.	=

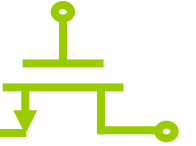
第2大題

2023 Advanced Mixed-Operation System (AMOS) Lab.



Tamkang University
Department of Electrical and Computer Engineering
No.151, Yingzhuan Rd., Tamsui Dist., New Taipei City 25137, Taiwan (R.O.C.)





小算盤

科學

$2^7 + 2^6 - 2^5 - 48 = 112$

DEG F-E

MC MR M+ M- MS M*

三角函數 函數

2^{nd}	π	e	CE	\times
x^2	$1/x$	$ x $	exp	mod
$\sqrt[n]{x}$	()	n!	\div
x^y	7	8	9	\times
10^x	4	5	6	-
log	1	2	3	+
ln	$\pm/\text{-}$	0	.	=

Registers

Register	Value
R0	0x00000001
R1	0x00000000
R2	0x00000007
R3	0x00000006
R4	0x00000005
R5	0x00000070
R6	0x00000000
R7	0x00000000
R8	0x00000000
R9	0x00000000
R10	0x00000000
R11	0x00000000
R12	0x00000000
R13 (SP)	0x00000000
R14 (LR)	0x00000020
R15 (PC)	0x00000020
CPSR	0x000000D3
SPSR	0x00000000
User/System	
Fast Interrupt	
Interrupt	
Supervisor	
Abort	
Undefined	
Internal	
PC \$	0x00000020
Mode	Supervisor
States	14
Sec	0.00000117

Disassembly

```

0x0000001C E2455030 SUB R5,R5,#0x00000030
16: STOP B STOP
0x00000020 EAffffff B 0x00000020
0x00000024 00000000 ANDEQ R0,R0,R0
0x00000028 00000000 ANDEQ R0,R0,R0
0x0000002C 00000000 ANDEQ R0,R0,R0
0x00000030 00000000 ANDEQ R0,R0,R0

```

TEST2-1.s

```

1 AREA LIN612450097, CODE, READONLY
2 ENTRY
3 ;*****
4 ; 2.(1)Compute j = (2^n + 2^m - 2^p) - 48 and put j in r5,
5 ; assuming n = 7, m = 6 and p = 5 are respectively in r2, r3 and r4 initially.
6 ;*****
7 MOV r2, #7 ; n = 7
8 MOV r3, #6 ; m = 6
9 MOV r4, #5 ; p = 5
10 LDR r0, =1 ; 2^1
11 ADD r5, r0, LSL r2 ; 2^n
12 ADD r5, r0, LSL r3 ; 2^n + 2^m
13 SUB r5, r0, LSL r4 ; 2^n + 2^m - 2^p
14 SUB r5, #48 ; (2^n + 2^m - 2^p) - 48
15
16 STOP B STOP
17 END

```

Memory 1

Address: 0x00000000

```

0x00000000: 07 20 A0 E3 06 30 A0 E3 05 40 A0 E3 01 00 A0 E3 10 52 85 E0 10 53 85 E0 10 54 45 E0 30 50 45 E2 FE FF FF EA 00
0x00000025: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x0000004A: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x0000006F: 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

```

Call Stack + Locals Memory 1

小算盤

程式設計人員

70

HEX 70

DEC 112

OCT 160

BIN 0111 0000

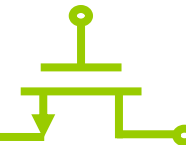
QWORD MS M*

位元 位元移位

A	<<	>>	CE	\times
B	()	%	\div
C	7	8	9	\times
D	4	5	6	-
E	1	2	3	+
F	$\pm/\text{-}$	0	.	=



2.(2)初始化



Registers

Register	Value
R0	0xDEADABCD
R1	0xABCD8765
R2	0xBEEFFACE
R3	0x40000000
R4	0x00000000
R5	0x00000000
R6	0x00000000
R7	0x00000000
R8	0x00000000
R9	0x00000000
R10	0x00000000
R11	0x00000000
R12	0x00000000
R13 (SP)	0x00000000
R14 (LR)	0x00000000
R15 (PC)	0x0000001C
CPSR	0x000000D3
SPSR	0x00000000
User/System	
Fast Interrupt	
Interrupt	
Supervisor	
Abort	
Undefined	
Internal	
PC	0x0000001C
Mode	Supervisor
States	16
Sec	0.00000133

Disassembly

```

0x00000018 E5832030 STR    R2, [R3, #0x0030]
23:         LDR      r4, =1
0x0000001C E3A04001 MOV     R4, #0x00000001
24:         LDR      r5, =0
0x00000020 E3A05000 MOV     R5, #0x00000000
25:         LDR      r6, =32
0x00000024 E3A06000 MOV     R6, #0x00000000

```

TEST2-2.s

```

1      AREA    LIN612450097, CODE, READONLY
2      ENTRY
3
4      ; *****
5      ; 2.(2) Assume 0xDEADABCD, 0xABCD8765 and 0xBEEFFACE are respectively
6      ; in memory at addresses 0x40000010, 0x40000020 and 0x40000030.
7      ; Write a program to calculate
8      ; *****
9      LDR     r0, =0xDEADABCD
10     LDR     r1, =0xABCD8765
11     LDR     r2, =0xBEEFFACE
12     LDR     r3, =0x40000000
13     STR     r0, [r3, #0x10]
14     STR     r1, [r3, #0x20]
15     STR     r2, [r3, #0x30]
16     ; *****
17     ; (a) the number of ones (using TST) in the word at address 0x40000010.
18     ; *****
19     ; leave the results of (a), (b), (c) and (d) respectively in the bytes
20     ; at addresses 0x40000040, 0x40000044, 0x40000048 and 0x4000004C.
21     ; (Note: Be sure to use loops.)
22     ; *****
23     LDR     r4, =1
24     LDR     r5, =0
25     LDR     r6, =32
26     LDR     r7, [r3, #0x10]
27 LOOPa
28     TST     r7, r4
29     ADDNE   r5, #1
30     LSL     r4, #1
31     SUB     r6, #1
32     CMP     r6, #0
33     BNE     LOOPa
34     STR     r5, [r3, #0x40]

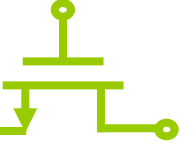
```

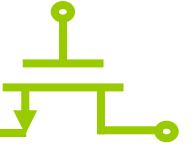
Memory 1

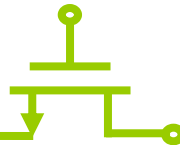
Address: 0x40000000

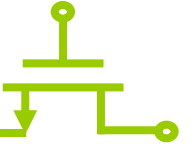
0x40000000:	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x40000004:	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x40000008:	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x4000000C:	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00
0x40000010:	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00	00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00

Call Stack + Locals | Memory 1

[illegible]

[illegible]

[illegible]

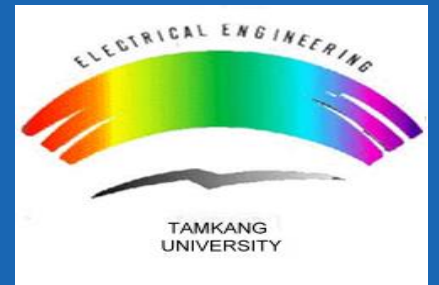
[illegible]

第3大題

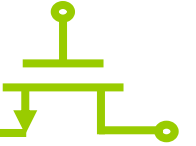
2023 Advanced Mixed-Operation System (AMOS) Lab.



Tamkang University
Department of Electrical and Computer Engineering
No.151, Yingzhuan Rd., Tamsui Dist., New Taipei City 25137, Taiwan (R.O.C.)



3.(1)



Registers

Register	Value
R0	0x00000000
R1	0x00000118
R2	0x00000134
R3	0x0000013C
R4	0x00000154
R5	0x0000015C
R6	0x00000000
R7	0x00000000
R8	0x00000000
R9	0x00000000
R10	0x00000000
R11	0x00000000
R12	0x00000000
R13 (SP)	0x00000000
R14 (LR)	0x00000000
R15 (PC)	0x00000014
CPSR	0x000000D3
SPSR	0x00000000
UserSystem	
Fast Interrupt	
Interrupt	
Supervisor	
Abort	
Undefined	
Internal	
PC \$	0x00000014
Mode	Supervisor
States	5
Sec	0.00000042

Disassembly

```

16:          ADR      r1, data1
0x00000014 E28F10FC ADD      R1,PC,#0x000000FC
17:          LDR      r0, =0x40000000
18: LOOP2
0x00000018 E3A00101 MOV      R0,#0x40000000
19:          LDRB     r6, [r1], #1
0x0000001C E4910001 LDRB     r6, [R1], #0x00000001

```

TEST3.s

```

1      AREA  LIN612450097, CODE, READONLY
2      ENTRY
3;*****
4;(1)Point out each stored value from the memory window
5;  and write down the address of each variable (data1~data5).
6;  (Be sure to use loops in Problems (2)~(9) below.)
7;*****
8      ADR      r1, data1
9      ADR      r2, data2
10     ADR      r3, data3
11     ADR      r4, data4
12     ADR      r5, data5
13;*****
14;(2)Store data1 into memory started from address 0x40000000.
15;*****
16     ADR      r1, data1
17     LDR      r0, =0x40000000
18 LOOP2
19     LDRB     r6, [r1], #1
20     STRB     r6, [r0], #1
21     CMP      r6, #0
22     BNE      LOOP2
23;*****
24;(3)Reverse the string in data1 and put the reversed string in the memory
25;  started at address 0x40000030
26;*****
27     ADR      r1, data1
28     LDR      r0, =0x40000030
29     ADD      r0, #25
30 LOOP3
31     LDRB     r6, [r1], #1
32     CMP      r6, #0
33     STRBNE   r6, [r0], #-1
34     BNE      LOOP3

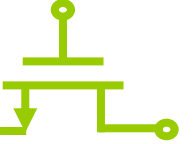
```

Memory 1

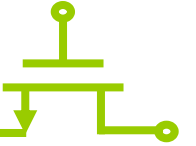
Address: 0x00000118

0x00000118:	4D 69 64 74 65 72 6D 20 45 78 61 6D 20 69 6E 20 46 61 6C 6C 20 32 30 32 33 21 00 00 34 12 78 56 EF BE CE FA
0x0000013C:	CC SE 00 00 37 FE 00 00 CD AB 00 00 01 00 00 00 05 00 00 00 CE FA 34 12 CF 17 27 54 FA FF AD 00 37 FE 00 00
0x00000160:	01 00 00 00 05 00 00 00 14 00 00 00 CE FA CD AB 78 56 34 12 60 00 00 40 70 00 00 40 90 00 00 40 B0 00 00 40
0x00000184:	C0 00 00 40 E0 00 00 40 00
0x000001A8:	00 00
0x000001CC:	00 00

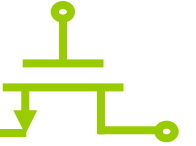




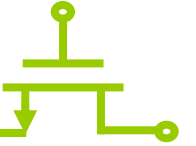
2023/11/20



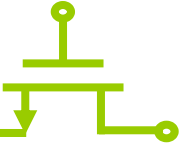
2023/11/20



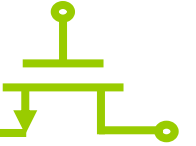
2023/11/20



2023/11/20



2023/11/20



Registers

Register	Value
R0	0x400000B7
R1	0x0000015B
R2	0x0000013C
R3	0x00000000
R4	0x00000154
R5	0x0000015C
R6	0x000000AD
R7	0x00000000
R8	0x00000000
R9	0x00000000
R10	0x00000000
R11	0x00000000
R12	0x00000000
R13 (SP)	0x00000000
R14 (LR)	0x00000000
R15 (PC)	0x000000CC
CPSR	0x600000D3
SPSR	0x00000000
UserSystem	
Fast Interrupt	
Interrupt	
Supervisor	
Abort	
Undefined	
Internal	
PC \$	0x000000CC
Mode	Supervisor
States	734
Sec	0.00006117

Disassembly

```

0x000000C8 1AFFFFFFA BNE 0x000000B8
88: ADR r1, data5
0x000000CC E28F1088 ADD R1,PC,#0x00000088
89: LDR r0,=0x400000C0
0x000000D0 E59F00AC LDR R0,[PC,#0x00AC]
90: LDR r3,=6
91: LOOP7

TEST3.s
73: *****
74: (7)Store the string data4 into memory started from address 0x400000B0.
75: *****
76: ADR r1, data4
77: LDR r0,=0x400000B0
78: LDR r3,=7
79: LOOP7
80: LDRB r6,[r1],#1
81: STRB r6,[r0],#1
82: SUB r3,#1
83: CMP r3,#0
84: BNE LOOP7
85: *****
86: (8)Store data5 into memory started from address 0x400000C0
87: *****
88: ADR r1, data5
89: LDR r0,=0x400000C0
90: LDR r3,=6
91: LOOP8
92: LDR r6,[r1],#4
93: STR r6,[r0],#4
94: SUB r3,#1
95: CMP r3,#0
96: BNE LOOP8
97: *****
98: (9)Add the 6 words in data5 and put the sum in the word
99: at memory address 0x400000E0.
100: *****
101: ADR r1, data5
102: LDR r0,=0x400000E0
103: LDR r3,=6
104: LDR r7,=0
105: LOOP9
106: LDR r6,[r1],#4

```

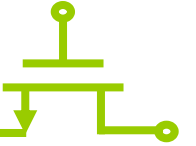
Memory 1

Address: 0x400000B0

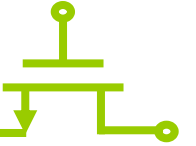
0x400000B0:	CE 17 27 54 F2 FE AD	00 00
0x400000D4:	00 00	
0x400000F8:	00 00	
0x4000011C:	00 00	
0x40000140:	00 00	
0x40000164:	00 00	

Call Stack + Locals
Memory 1





2023/11/20



小算盤

程式設計人員

FE37 + 1 + 5 + 14 + ABCDFACE + 12345678 =

BE03 4F97

HEX BE03 4F97

DEC 3,187,888,023

OCT 27 600 647 627

BIN 1011 1110 0000 0011 0100 1111 1001 0111

QWORD MS M^

D 位元 位元移位

A	<<	>>	CE	<X>
B	()	%	÷
C	7	8	9	×
D	4	5	6	—
E	1	2	3	+
F	+/-	0	.	=

[illegible]

Q&A

Thanks for your attention !!