

COMPUTER ARCHITECTURE

1.8BIT ADDITION

Load me at

1

lda 2000

2

mov b,a

3

lda 2005

4

add b

5

sta 2010

6

hlt

Start

2000

Address (Hex)	Address	Data
07D0	2000	8
07D1	2001	0
07D2	2002	0
07D3	2003	0
07D4	2004	0
07D5	2005	8
07D6	2006	0
07D7	2007	0
07D8	2008	0
07D9	2009	0
07DA	2010	16
07DB	2011	0
07DC	2012	0
07DD	2013	0

Line No	Assembler Message
0	Program assembled successfully

2.8BIT SUBTRACTION

Load me at

1

lda 2000

2

mov b,a

3

lda 2005

4

sub b

5

sta 2010

6

hlt

Start

2000

Address (Hex)	Address	Data
07D0	2000	8
07D1	2001	0
07D2	2002	0
07D3	2003	0
07D4	2004	0
07D5	2005	12
07D6	2006	0
07D7	2007	0
07D8	2008	0
07D9	2009	0
07DA	2010	4
07DB	2011	0
07DC	2012	0
07DD	2013	0

Line No	Assembler Message
0	Program assembled successfully

3.8BIT MULTIPLICATION

Load me at

```
1 mvi d,00
2 mvi a,00
3 lxi h,4150
4 mov b,m
5 inx h
6 mov c,m
7 loop: add b
8 jnc next
9 inr d
10 next: dcr c
11 jnz loop
12 sta 4152
13 mov a,d
14 sta 4153
15 hlt
```

DataStackKeyPadMemoryI/O Ports

Start4150OK

Address (Hex)	Address	Data
1036	4150	5
1037	4151	5
1038	4152	25
1039	4153	0
103A	4154	0
103B	4155	0
103C	4156	0
103D	4157	0
103E	4158	0
103F	4159	0
1040	4160	0
1041	4161	0
1042	4162	0
1043	4163	0

Line NoAssembler Message

0Program assembled successfully

4.8BIT DIVISION

Load me at

```
1 lxi h,4150
2 mov b,m
3 mvi c,00
4 inx h
5 mov a,m
6 next: cmp b
7 jc loop
8 sub b
9 inr c
10 jmp next
11 loop: sta 4152
12 mov a,c
13 sta 4153
14 hlt
```

DataStackKeyPadMemoryI/O Ports

Start4150OK

Address (Hex)	Address	Data
1036	4150	8
1037	4151	3
1038	4152	3
1039	4153	0
103A	4154	0
103B	4155	0
103C	4156	0
103D	4157	0
103E	4158	0
103F	4159	0
1040	4160	0
1041	4161	0
1042	4162	0
1043	4163	0

Line NoAssembler Message

0Program assembled successfully

5.16BIT ADDITION

Load me at

```
1 LHLD 2050
2 XCHG
3 LHLD 2052
4 DAD D
5 SHLD 2080
6 HLT
```

DataStackKeyPadMemoryI/O Ports

Start2050OK

Address (Hex)	Address	Data
0802	2050	5
0803	2051	0
0804	2052	5
0805	2053	0
0806	2054	0
0807	2055	0
0808	2056	0
0809	2057	0
080A	2058	0
080B	2059	0
080C	2060	0
080D	2061	0
080E	2062	0
080F	2063	0

Line NoAssembler Message

0Program assembled successfully

6.16BIT SUBTRACTION

Load me at

1

LHLD 2050

2

XCHG

3

LHLD 2052

4

MVI C,00

5

MOV A,E

6

SUB L

7

STA 2054

8

MOV A,D

9

SBB H

10

STA 2055

11

HLT

Data

Stack

KeyPad

Memory

I/O Ports

Start

2050

OK

Address (Hex)	Address	Data
0802	2050	5
0803	2051	0
0804	2052	2
0805	2053	0
0806	2054	3
0807	2055	0
0808	2056	0
0809	2057	0
080A	2058	0
080B	2059	0
080C	2060	0
080D	2061	0
080E	2062	0
080F	2063	0

Line No

Assembler Message

0

Program assembled successfully

7.16BIT MULTIPLICATION

Load me at

1

LHLD 2001

2

XCHG

3

LHLD 2020

4

MOV C,H

5

MVI A,00

6

LOOP: ADD D

7

DCR C

8

JNZ LOOP

9

MOV H,A

10

MOV B,L

11

MVI A,00

12

LP: ADD E

13

DCR B

14

JNZ LP

15

MOV L,A

16

SHLD 2050

17

HLT

Data

Stack

KeyPad

Memory

I/O Ports

Start

2001

OK

Address (Hex)	Address	Data
07FD	2045	0
07FE	2046	0
07FF	2047	0
0800	2048	0
0801	2049	0
0802	2050	25
0803	2051	0
0804	2052	2
0805	2053	0
0806	2054	3
0807	2055	0
0808	2056	0
0809	2057	0
080A	2058	0

Line No

Assembler Message

0

Program assembled successfully

8.16BIT DIVISION

Load me at

1

LXI B,0000

2

LHLD 2000

3

XCHG

4

LHLD 2015

5

LOOP: MOV A,L

6

SUB E

7

MOV L,A

8

MOV A,H

9

SBB D

10

MOV H,A

11

JC SKIP

12

INX B

13

JMP LOOP

14

SKIP: DAD D

15

SHLD 2050

16

MOV L,C

17

MOV H,B

18

SHLD 2070

19

HLT

DataStackKeyPadMemoryI/O Ports

Start2000OK

Address (Hex)	Address	Data
0000	2000	0
0810	2064	0
0811	2065	0
0812	2066	0
0813	2067	0
0814	2068	0
0815	2069	0
0816	2070	2
0817	2071	0
0818	2072	0
0819	2073	0
081A	2074	0
081B	2075	0
081C	2076	0
081D	2077	0

Line No

Assembler Message

0

Program assembled successfully