

Computer Architecture

9. Factorial of a number

Load me at

```
1  lda 2001
2  mov b,a
3  mvi c,#01
4  mvi e,#01
5  loop: mov d,c
6  mvi a,00
7  ip: add e
8  dcr d
9  jnz ip
10 mov e,a
11 inr c
12 dcr b
13 jnz loop
14 mov a,e
15 sta 2010
16 hlt
```

DataStackKeyPadMemoryI/O Ports

Start2001OK

Address (Hex)	Address	Data
07D1	2001	5
07D2	2002	0
07D3	2003	0
07D4	2004	0
07D5	2005	0
07D6	2006	0
07D7	2007	0
07D8	2008	0
07D9	2009	0
07DA	2010	120
07DB	2011	0
07DC	2012	0
07DD	2013	0
07DE	2014	0

Line No

Assembler Message

0Program assembled successfully

10. Swap two 8-bit data

Load me at

```
1  lda 2000
2  mov h,a
3  lda 2001
4  mov d,a
5  xchg
6  mov a,h
7  sta 2000
8  mov a,d
9  sta 2001
10 hlt
```

DataStackKeyPadMemoryI/O Ports

Start2000OK

Address (Hex)	Address	Data
07D0	2000	4
07D1	2001	5
07D2	2002	0
07D3	2003	0
07D4	2004	0
07D5	2005	0
07D6	2006	0
07D7	2007	0
07D8	2008	0
07D9	2009	0
07DA	2010	0
07DB	2011	0
07DC	2012	0
07DD	2013	0

Line No

Assembler Message

0Program assembled successfully

11. Find the largest number in an array

Load me at

```
1 lxi h,4200
2 mov b,m
3 inx h
4 mov a,m
5 dcr b
6 loop: inx h
7 cmp m
8 jnc ahead
9 mov a,m
10 ahead: dcr b
11 jnz loop
12 sta 4300
13 hlt
```

DataStackKeyPadMemoryI/O Ports

Start4200OK

Address (Hex)	Address	Data
1068	4200	2
1069	4201	3
106A	4202	5
106B	4203	1
106C	4204	0
106D	4205	0
106E	4206	0
106F	4207	0
1070	4208	0
1071	4209	0
1072	4210	0
1073	4211	0
1074	4212	0
1075	4213	0

Line No

Assembler Message

0Program assembled successfully

12.1's and 2's complement of 8 bit number

Load me at

```
1 LDA 2000
2 CMA
3 STA 2001
4 INR A
5 STA 2002
6 HLT
```

DataStackKeyPadMemoryI/O Ports

Start2000OK

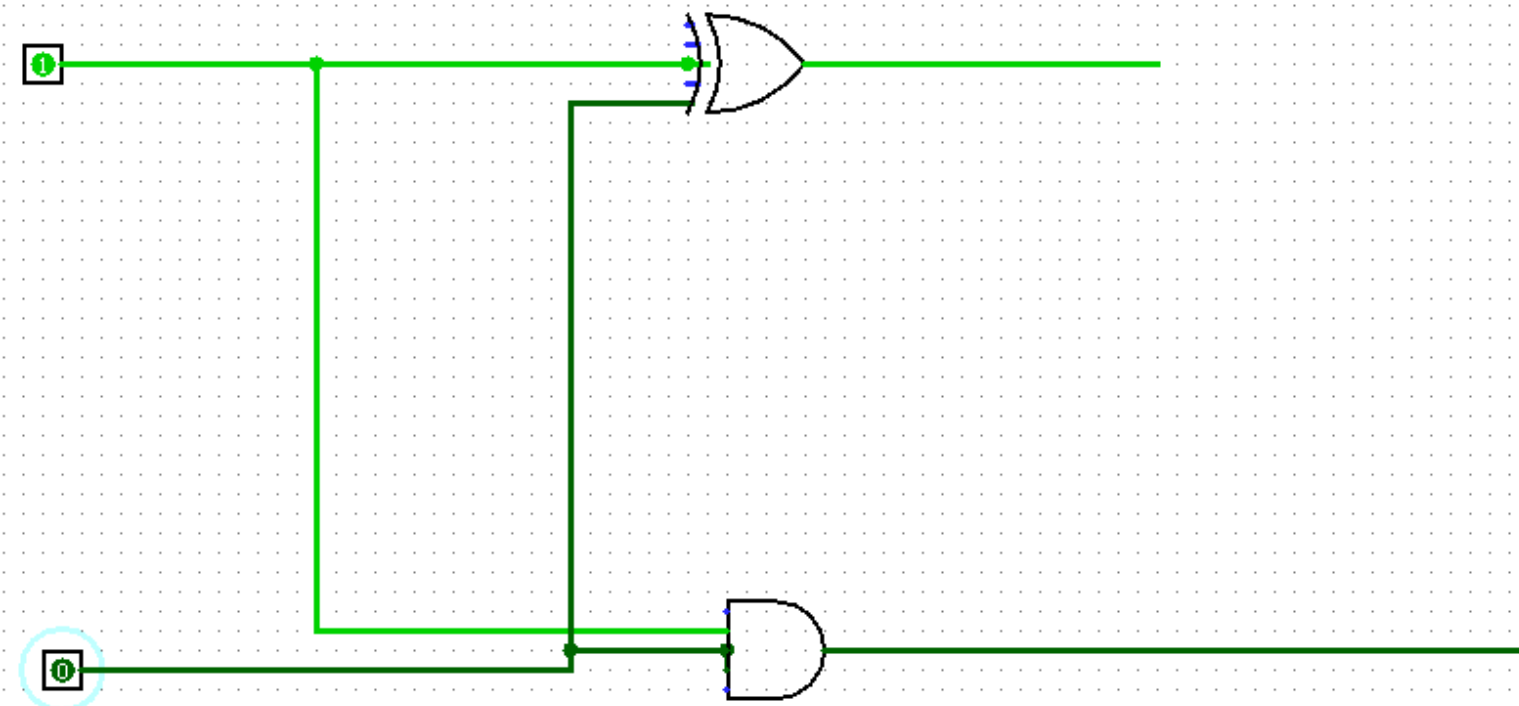
Address (Hex)	Address	Data
07D0	2000	23
07D1	2001	232
07D2	2002	233
07D3	2003	0
07D4	2004	0
07D5	2005	0
07D6	2006	0
07D7	2007	0
07D8	2008	0
07D9	2009	0
07DA	2010	0
07DB	2011	0
07DC	2012	0
07DD	2013	0

Line No

Assembler Message

0Program assembled successfully

13.Half adder in Logisim



14.Full adder in Logisim

