

1'S AND 2'S COMPLEMENT FOR 16 BIT

Registers

A

18

BC

00

05

DE

00

18

HL

00

00

PSW

00

00

PC

42

1B

SP

FF

FF

Int-Reg

00

Flag

S

0

Z

1

AC

0

P

1

C

0

Decimal - Hex Conversion

Decimal

0

Hex

0

To Hex

To Dec

I/O Ports

0

-

+

00

Update Port Value

Memory

2001

-

+

04

Update Memory

Load me at

1

LHLD

3000

2

MOV

A, L

3

CMA

4

MOV

L, A

5

MOV

A, H

6

CMA

7

MOV

H, A

8

SHLD

3002

9

INX

H

10

SHLD

3004

11

HLT

Start

OK

Address (Hex)

Address

Data

07D4

2004

24

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

07DE

2014

0

07DF

2015

0

Line No

Assembler Message

0

Program assembled successfully

1'S AND 2'S COMPLEMENT FOR 8 BIT

Registers

A

18

BC

00

05

DE

00

18

HL

00

00

PSW

00

00

PC

42

1B

SP

FF

FF

Int-Reg

00

Flag

S

0

Z

1

AC

0

P

1

C

0

Decimal - Hex Conversion

Decimal

0

Hex

0

To Hex

To Dec

I/O Ports

0

-

+

00

Update Port Value

Memory

2001

-

+

04

Update Memory

Load me at

1

LHLD

3000

2

MOV

A, L

3

CMA

4

MOV

L, A

5

MOV

A, H

6

CMA

7

MOV

H, A

8

SHLD

3002

9

INX

H

10

SHLD

3004

11

HLT

Start

OK

Address (Hex)

Address

Data

07D4

2004

24

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

07DE

2014

0

07DF

2015

0

Line No

Assembler Message

0

Program assembled successfully

16 BIT ADDITION 2

GNUSim8085 - 8085 Microprocessor Simulator

File Reset Assembler Debug Help

Registers

Register	Value
A	00
BC	00 00
DE	42 2D
HL	42 43
PSW	00 00
PC	42 0C
SP	FF FF
Int-Reg	00

Flag

Flag	Value
S	0
Z	0
AC	0
P	1
C	0

Load me at

1 LHL D 2050
2 XCHG
3 LHL D 2052
4 DAD D
5 SHLD 3050
6 HLT

Decimal - Hex Conversion

Decimal: 0 Hex: 0

To Hex To Dec

I/O Ports

0 - + 00

Update Port Value

Memory

2053 - + 00

Update Memory

Data Stack KeyPad Memory I/O Ports

Start 3050 OK

Address (Hex)	Address	Data
0BEA	3050	67
0BEB	3051	66
0BEC	3052	0
0BED	3053	0
0BEE	3054	0
0BEF	3055	0
0BF0	3056	0
0BF1	3057	0
0BF2	3058	0
0BF3	3059	0
0BF4	3060	0

Line No Assembler Message

0 Program assembled successfully

16 BIT ADDITION

GNUSim8085 - 8085 Microprocessor Simulator

File Reset Assembler Debug Help

Registers

Register	Value
A	63
BC	42 00
DE	00 00
HL	00 00
PSW	00 00
PC	42 17
SP	FF FF
Int-Reg	00

Flag

Flag	Value
S	0
Z	0
AC	0
P	1
C	0

Load me at

1 LDA 2050
2 MOV B, A
3 LDA 2052
4 ADD B
5 STA 3050
6 LDA 2051
7 MOV B, A
8 LDA 2053
9 ADC B
10 STA 3051
11 HLT

Decimal - Hex Conversion

Decimal: 0 Hex: 0

To Hex To Dec

I/O Ports

0 - + 00

Update Port Value

Memory

2050 - + 2D

Update Memory

Data Stack KeyPad Memory I/O Ports

Start 3050 OK

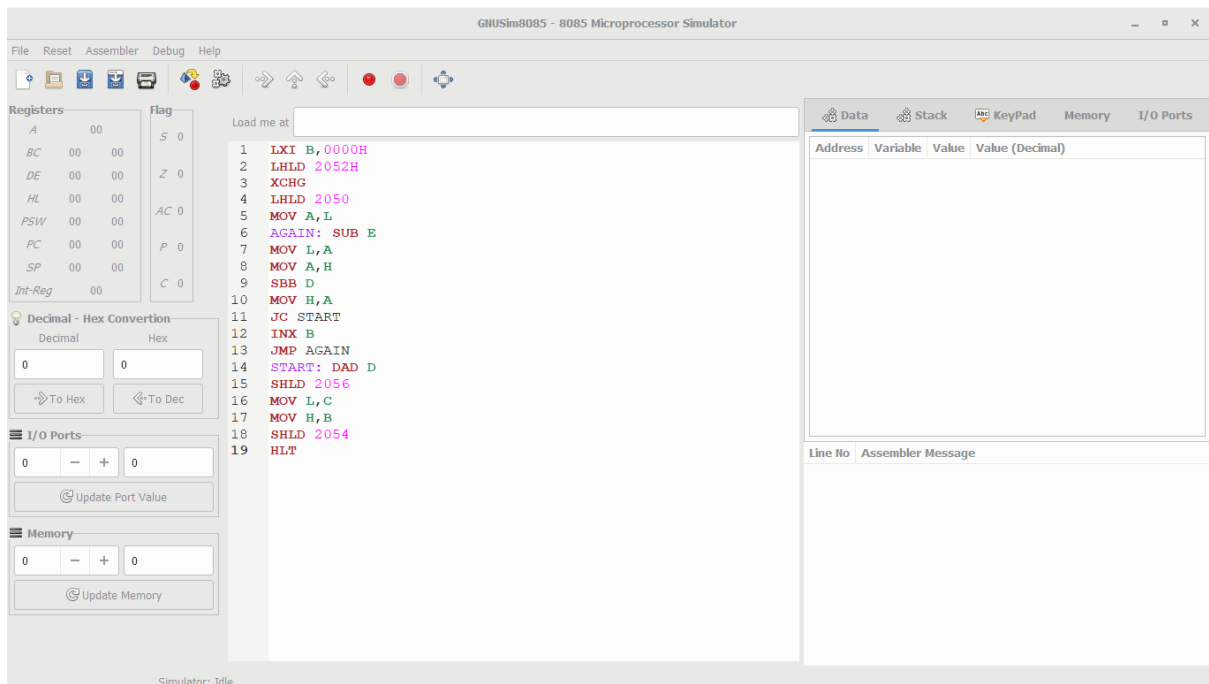
Address (Hex)	Address	Data
0BEA	3050	67
0BEB	3051	99
0BEC	3052	0
0BED	3053	0
0BEE	3054	0
0BEF	3055	0
0BF0	3056	0
0BF1	3057	0
0BF2	3058	0
0BF3	3059	0
0BF4	3060	0
0BF5	3061	0

Line No Assembler Message

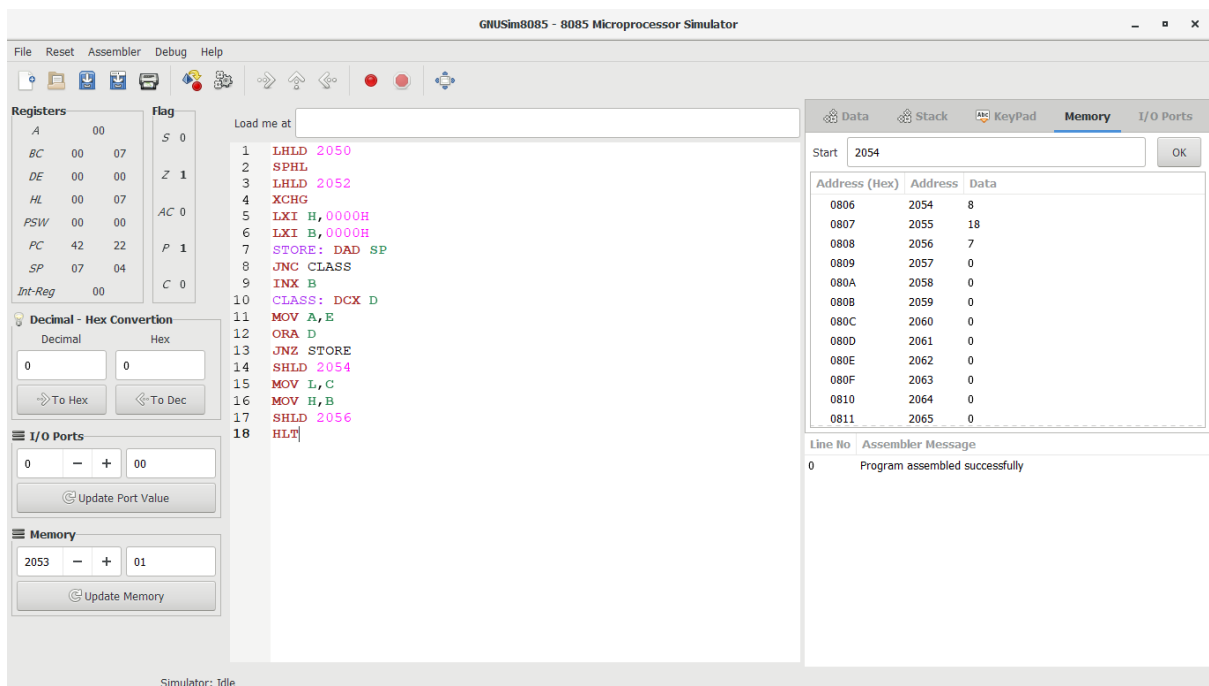
0 Program assembled successfully

Simulator: Idle

16 BIT DIVISION



16 BIT MULTIPLICATION



16 BIT SUBTRACTION

GNUSim8085 - 8085 Microprocessor Simulator

File Reset Assembler Debug Help

Registers

Register	Value	Flag	Value
A	00	S	0
BC	00 07	Z	1
DE	00 00	AC	0
HL	00 07	P	1
PSW	00 00	C	0
PC	42 22		
SP	07 04		
Int-Reg	00		

Decimal - Hex Conversion

Decimal: 0 Hex: 0

I/O Ports

Port 0: 0 Port 1: 00

Memory

Address: 2053 Value: 01

Load me at

```

1  LHLD 2050
2  SPHL
3  LHLD 2052
4  XCHG
5  LXI H,0000H
6  LXI B,0000H
7  STORE: DAD SP
8  JNC CLASS
9  INX B
10 CLASS: DCX D
11 MOV A,E
12 ORA D
13 JNZ STORE
14 SHLD 2054
15 MOV L,C
16 MOV H,B
17 SHLD 2056
18 HLT

```

Memory

Address (Hex)	Address	Data
0806	2054	8
0807	2055	18
0808	2056	7
0809	2057	0
080A	2058	0
080B	2059	0
080C	2060	0
080D	2061	0
080E	2062	0
080F	2063	0
0810	2064	0
0811	2065	0

Line No Assembler Message

0 Program assembled successfully

Simulator: Idle

8 BIT ADDITION

GNUSim8085 - 8085 Microprocessor Simulator

File Reset Assembler Debug Help

Registers

Register	Value	Flag	Value
A	1E	S	0
BC	05 00	Z	1
DE	1E 00	AC	0
HL	00 00	P	1
PSW	00 00	C	0
PC	42 0D		
SP	FF FF		
Int-Reg	00		

Decimal - Hex Conversion

Decimal: 11 Hex: B

I/O Ports

Port 0: 0 Port 1: 00

Memory

Address: 0 Value: 00

Load me at

```

1  MVI A,00H
2  MVI B,05H
3  MVI C,06H
4  STORE: ADD B
5  DCR C
6  JNZ STORE
7  MOV D,A
8  HLT

```

Data

Address	Variable	Value	Value (Decimal)
---------	----------	-------	-----------------

Line No Assembler Message

0 Program assembled successfully

Simulator: Idle

8 BIT DIVISION

GNUSim8085 - 8085 Microprocessor Simulator

File Reset Assembler Debug Help

Registers: A 01, BC 03 01, DE 01 00, HL 00 00, PSW 00 00, PC 42 11, SP FF FF, Int-Reg 00. Flag: S 1, Z 0, AC 0, P 0, C 1.

Load me at: 1 MVI A, 04H, 2 MVI B, 03H, 3 MVI C, 00H, 4 AGAIN: CMP B, 5 JC STORE, 6 SUB B, 7 INR C, 8 JMP AGAIN, 9 STORE: MOV D, A, 10 HLT.

Decimal - Hex Conversion: Decimal 0, Hex 0. To Hex, To Dec.

I/O Ports: 0, 00. Update Port Value.

Memory: 0, 00. Update Memory.

Start: 2000. OK.

Address (Hex)	Address	Data
07D0	2000	0
07D1	2001	0
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

Line No Assembler Message

0 Program assembled successfully

Simulator: Idle

8 BIT MULTIPLICATION

GNUSim8085 - 8085 Microprocessor Simulator

File Reset Assembler Debug Help

Registers: A 1E, BC 05 00, DE 1E 00, HL 00 00, PSW 00 00, PC 42 0D, SP FF FF, Int-Reg 00. Flag: S 0, Z 1, AC 0, P 1, C 0.

Load me at: 1 MVI A, 00H, 2 MVI B, 05H, 3 MVI C, 06H, 4 STORE: ADD B, 5 DCR C, 6 JNZ STORE, 7 MOV D, A, 8 HLT.

Decimal - Hex Conversion: Decimal 11, Hex 8. To Hex, To Dec.

I/O Ports: 0, 00. Update Port Value.

Memory: 0, 00. Update Memory.

Start: 2000. OK.

Address	Variable	Value	Value (Decimal)
---------	----------	-------	-----------------

Line No Assembler Message

0 Program assembled successfully

Simulator: Idle

8 BIT SUBTRACTION

GNUSim8085 - 8085 Microprocessor Simulator

File Reset Assembler Debug Help

Registers

Register	Value
A	FF
BC	05 06
DE	FF 00
HL	00 00
PSW	00 00
PC	42 08
SP	FF FF
Int-Reg	00

Flag

Flag	Value
S	1
Z	0
AC	0
P	1
C	1

Load me at

```

1 MVI B,05H
2 MVI C,06H
3 MOV A,B
4 SUB C
5 MOV D,A
6 HLT

```

Decimal - Hex Conversion

Decimal: 0 Hex: 0

I/O Ports

0 - + 00

Update Port Value

Memory

0 - + 00

Update Memory

Simulator: Idle

Data Stack Keypad Memory I/O Ports

Start 2000 OK

Address (Hex)	Address	Data
07D0	2000	0
07D1	2001	0
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

Line No Assembler Message

0 Program assembled successfully

ADDITION FOR 8 BIT

GNUSim8085 - 8085 Microprocessor Simulator

File Reset Assembler Debug Help

Registers

Register	Value
A	08
BC	08 06
DE	08 00
HL	00 00
PSW	00 00
PC	42 09
SP	FF FF
Int-Reg	00

Flag

Flag	Value
S	0
Z	0
AC	0
P	0
C	0

Load me at

```

1 MVI A,00H
2 MVI B,08H
3 MVI C,06H
4 ADD B
5 MOV D,A
6 HLT

```

Decimal - Hex Conversion

Decimal: 0 Hex: 0

I/O Ports

0 - + 00

Update Port Value

Memory

0 - + 00

Update Memory

Simulator: Idle

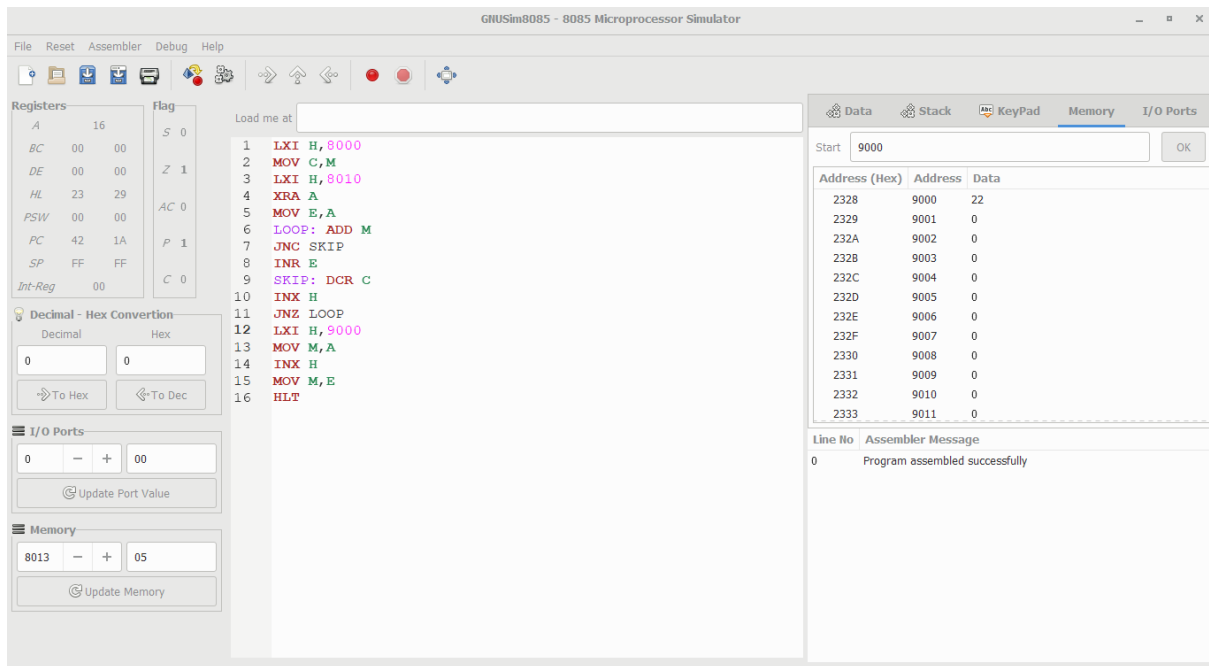
Data Stack Keypad Memory I/O Ports

Address	Variable	Value	Value (Decimal)
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Line No Assembler Message

0 Program assembled successfully

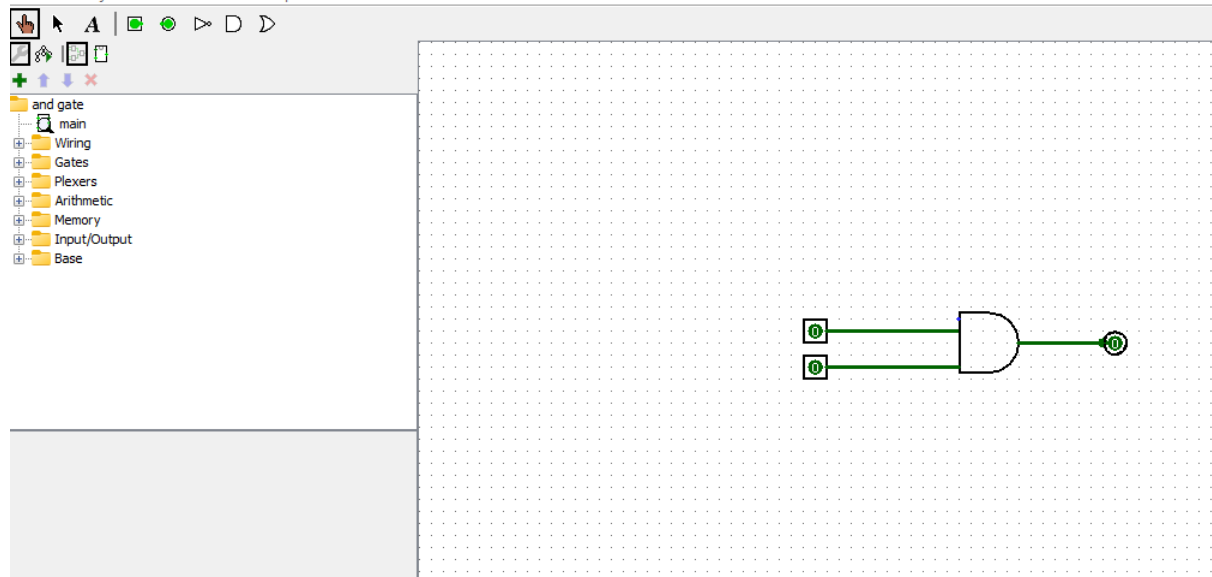
ADDITION OF N NUMBER



AND GATE OPERATION

Logisim: main of and gate

File Edit Project Simulate Window Help



AND OPERATION

GNUSim8085 - 8085 Microprocessor Simulator

File Reset Assembler Debug Help

Registers

A	04
BC	04 00
DE	00 00
HL	00 00
PSW	00 00
PC	42 09
SP	FF FF
Int-Reg	00

Flag

S	0
Z	0
AC	1
P	0
C	0

Load me at

```

1 MVI A, 6
2 MVI B, 4
3 ANA B
4 STA 2100
5 HLT

```

Start 2100 OK

Address (Hex)	Address	Data
0834	2100	4
0835	2101	0
0836	2102	0
0837	2103	0
0838	2104	0
0839	2105	0
083A	2106	0
083B	2107	0
083C	2108	0
083D	2109	0
083E	2110	0

I/O Ports

0 - + 00 Update Port Value

Memory

2001 - + 00 Update Memory

Decimal - Hex Conversion

Decimal 0 Hex 0

To Hex To Dec

Line No Assembler Message

0 Program assembled successfully

ASCENDING ORDER IN 8085

GNUSim8085 - 8085 Microprocessor Simulator

File Reset Assembler Debug Help

Registers

A	00
BC	00 00
DE	00 00
HL	00 00
PSW	00 00
PC	00 00
SP	00 00
Int-Reg	00

Flag

S	0
Z	0
AC	0
P	0
C	0

Load me at

```

1 STORE: LXI H, 8000H
2 MVI D, 00H
3 MOV C, M
4 DCR C
5 INX H
6 LOOP: MOV A, M
7 INX H
8 CMP M
9 JC LOOP1
10 MOV B, M
11 MOV M, A
12 DCX H
13 MOV M, B
14 INX H
15 MVI D, 01H
16 LOOP1: DCR C
17 JNZ LOOP
18 MOV A, D
19 RRC
20 JC STORE
21 HLT

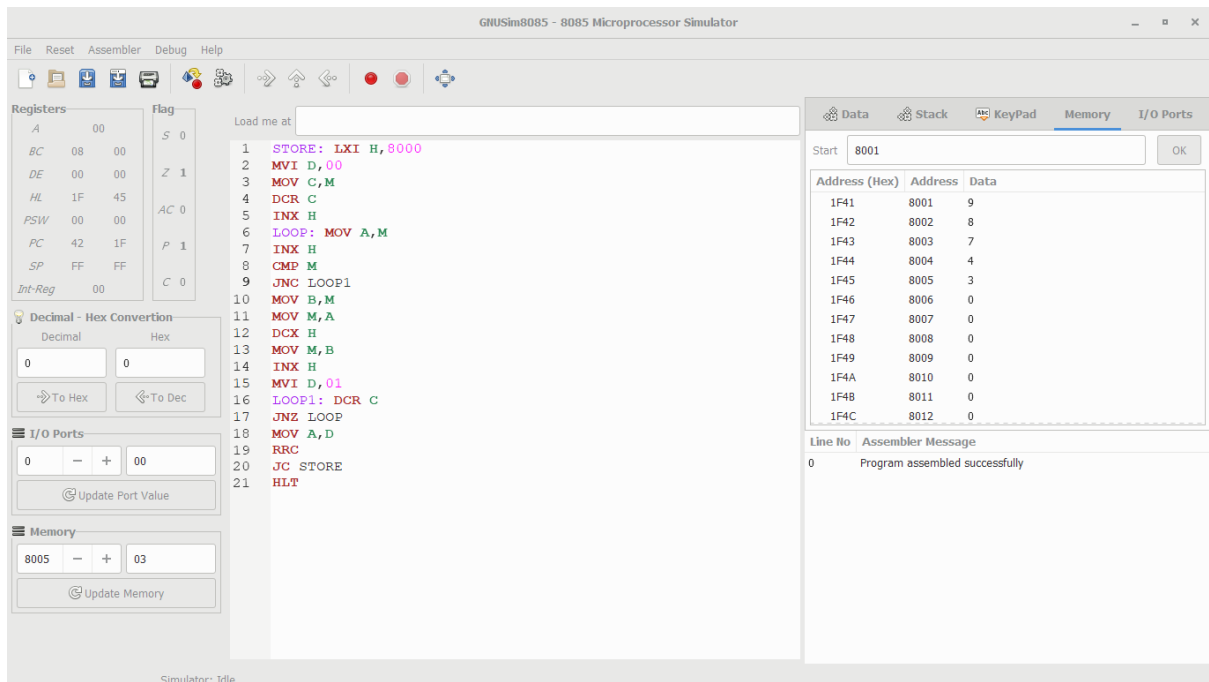
```

Address Variable Value Value (Decimal)

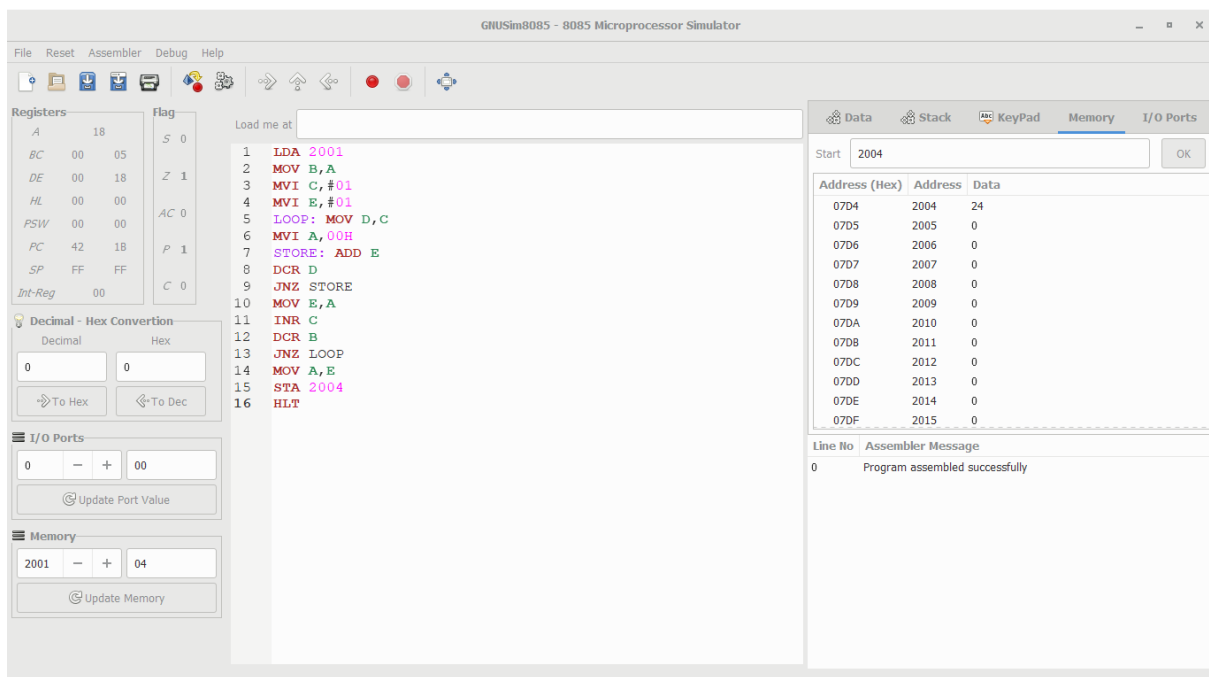
Line No Assembler Message

Simulator: Idle

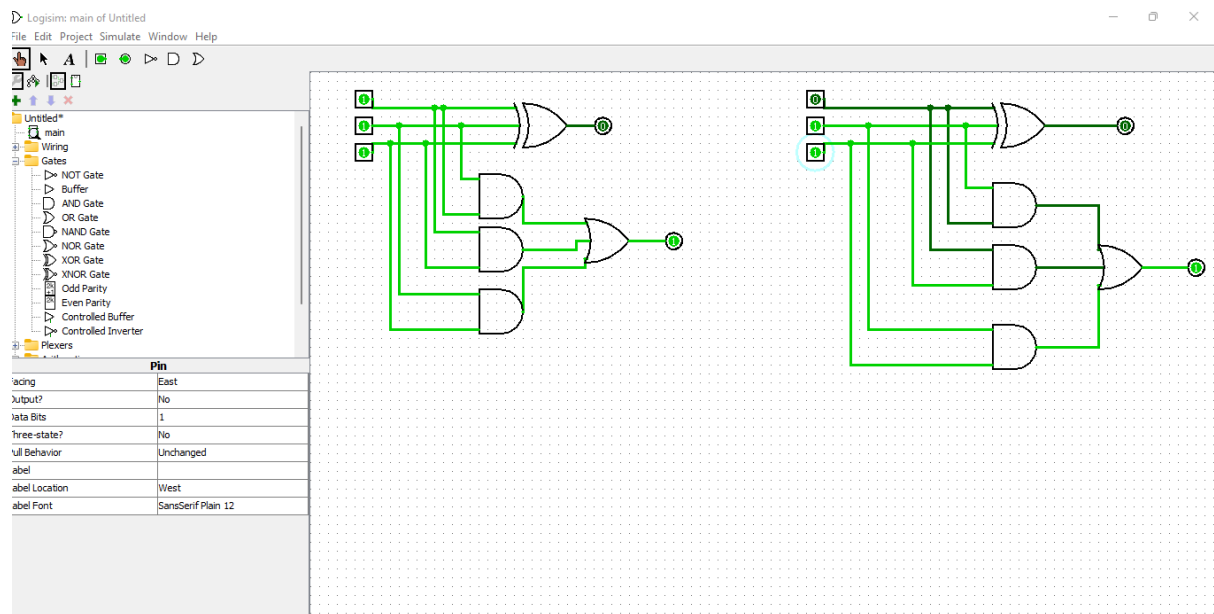
DESCENDING ORDER IN 8085



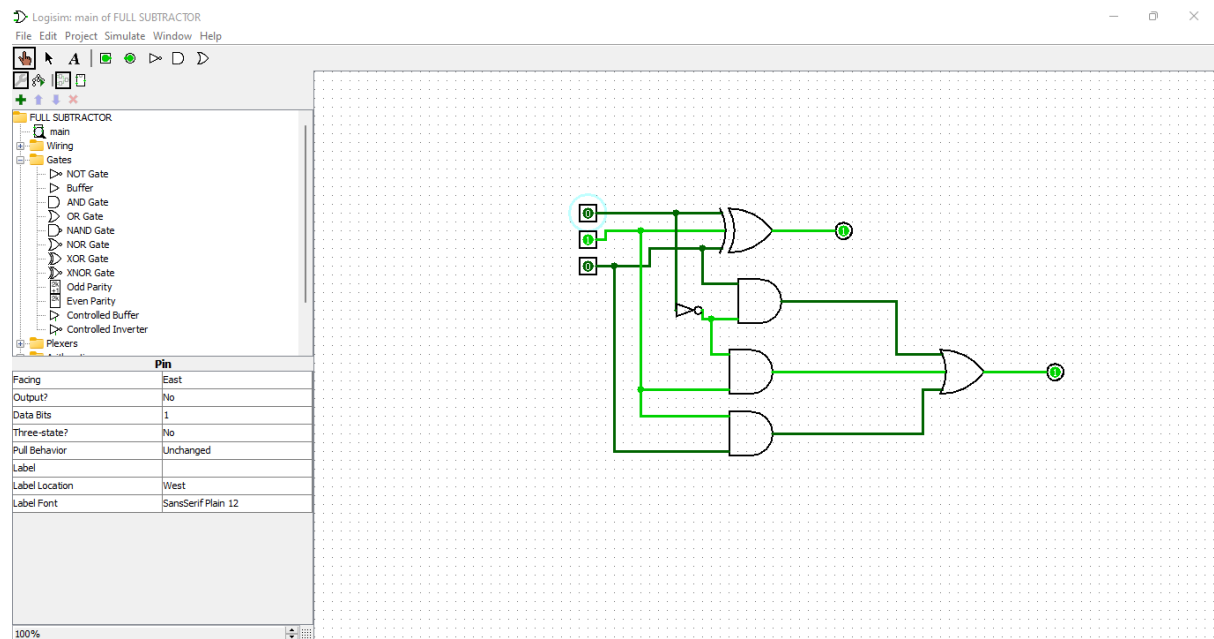
FACTORIAL IN 8085



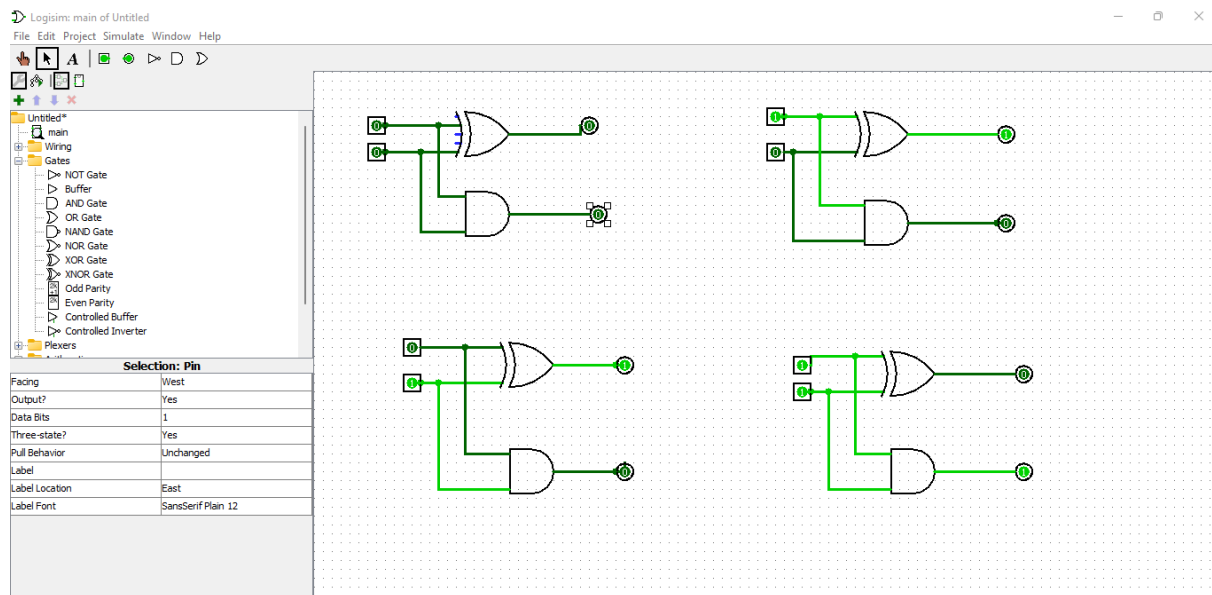
FULL ADDER



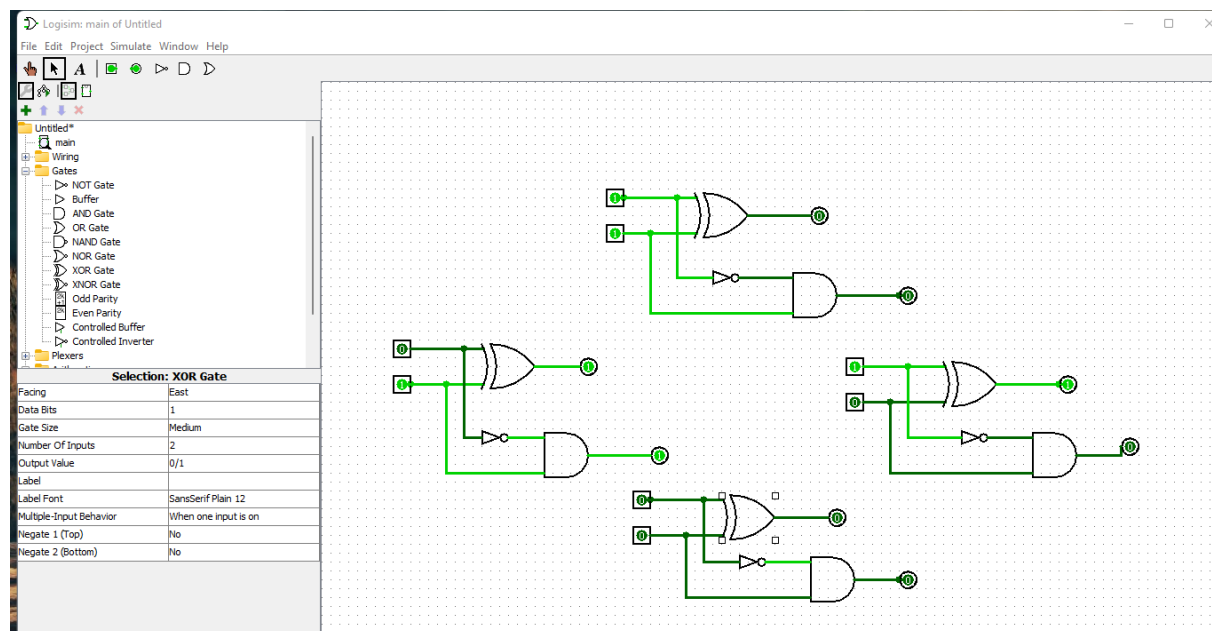
FULL SUBTRACTOR



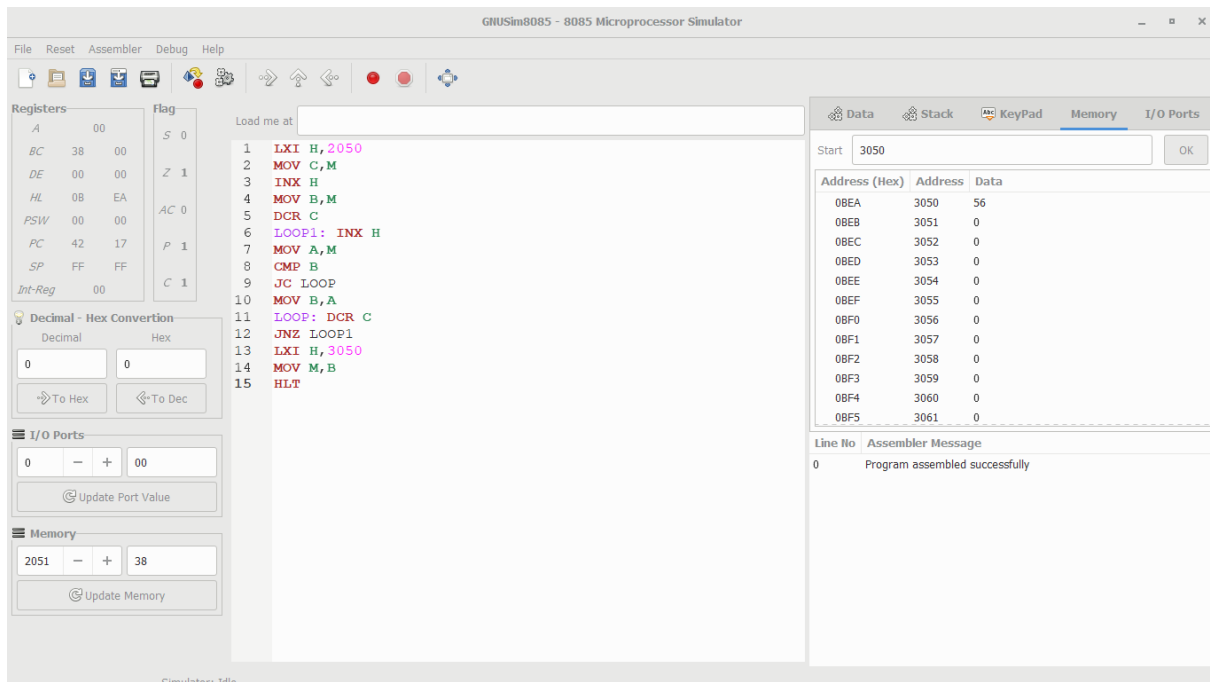
HALF ADDER



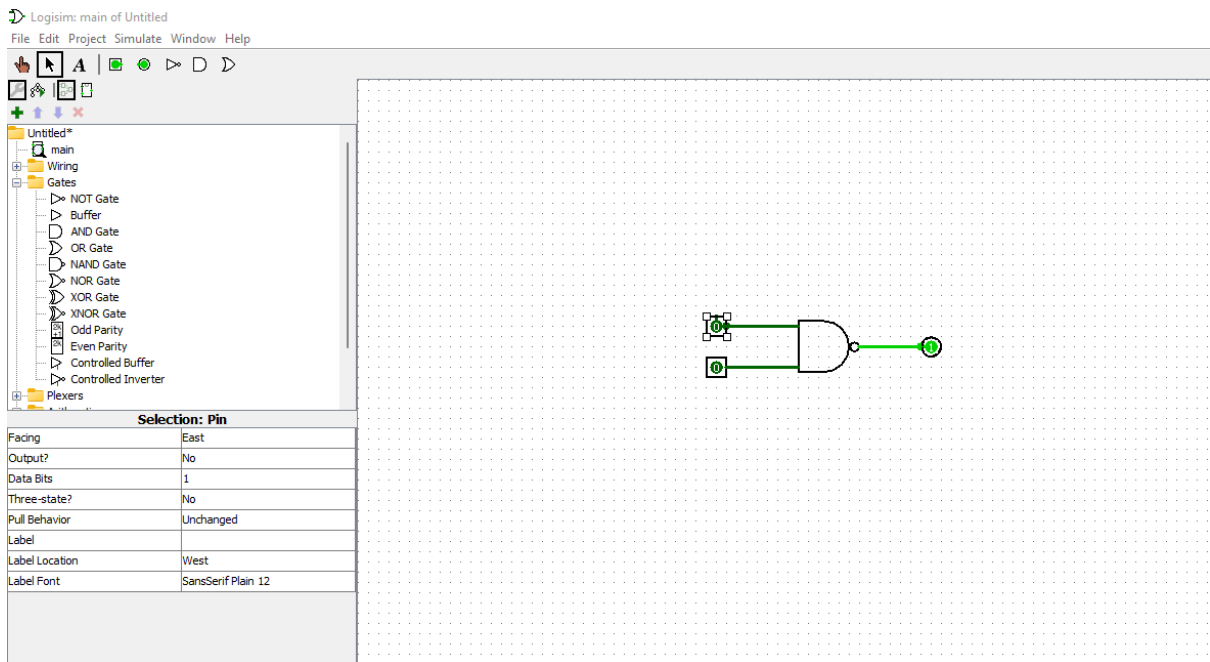
HALF SUBTRACTOR



LARGEST NUMBER FOR 2 DIGITS



NAND GATE



NOR GATE

Logisim: main of Untitled

File Edit Project Simulate Window Help

Pin	
Facing	East
Output?	No
Data Bits	1
Three-state?	No
Pull Behavior	Unchanged
Label	
Label Location	West
Label Font	SansSerif Plain 12

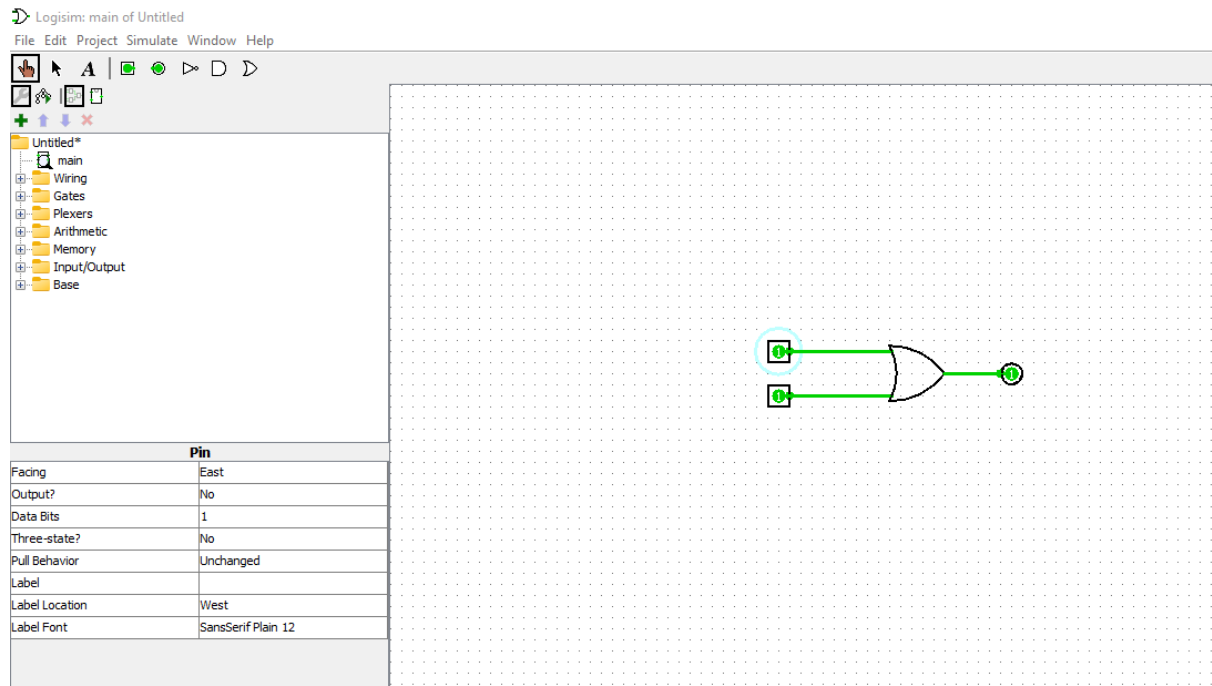
NOT GATE

Logisim: main of not gate

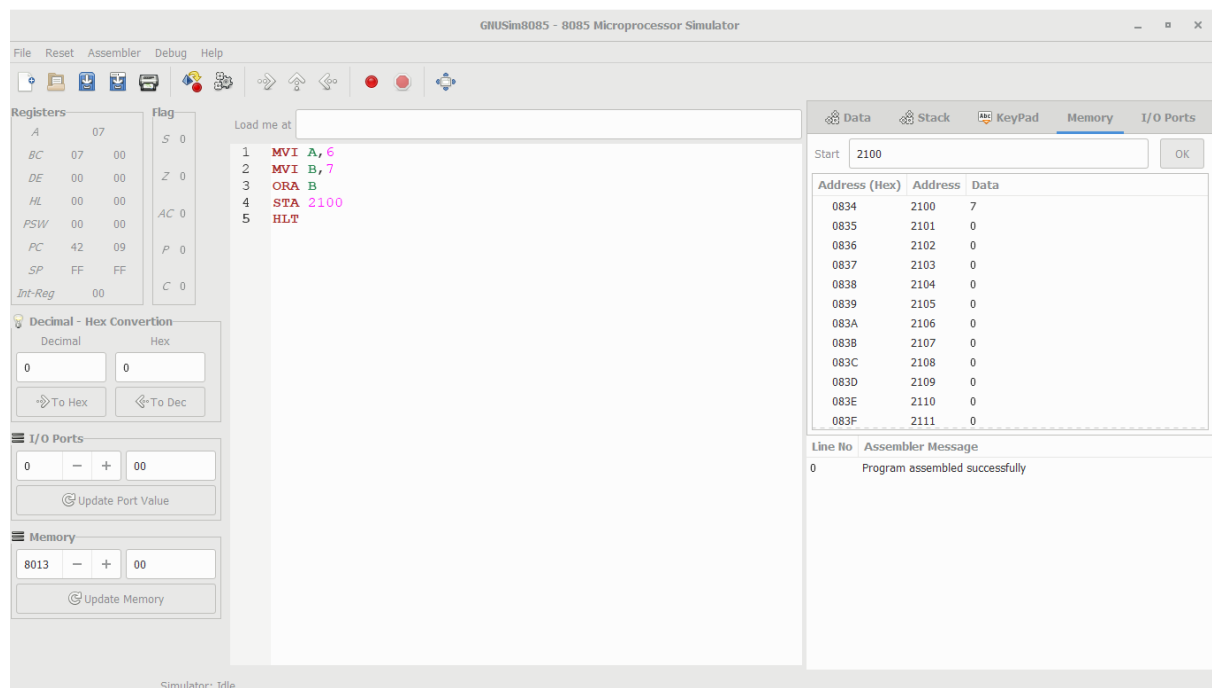
File Edit Project Simulate Window Help

Pin	
Facing	East
Output?	No
Data Bits	1
Three-state?	No
Pull Behavior	Unchanged
Label	
Label Location	West
Label Font	SansSerif Plain 12

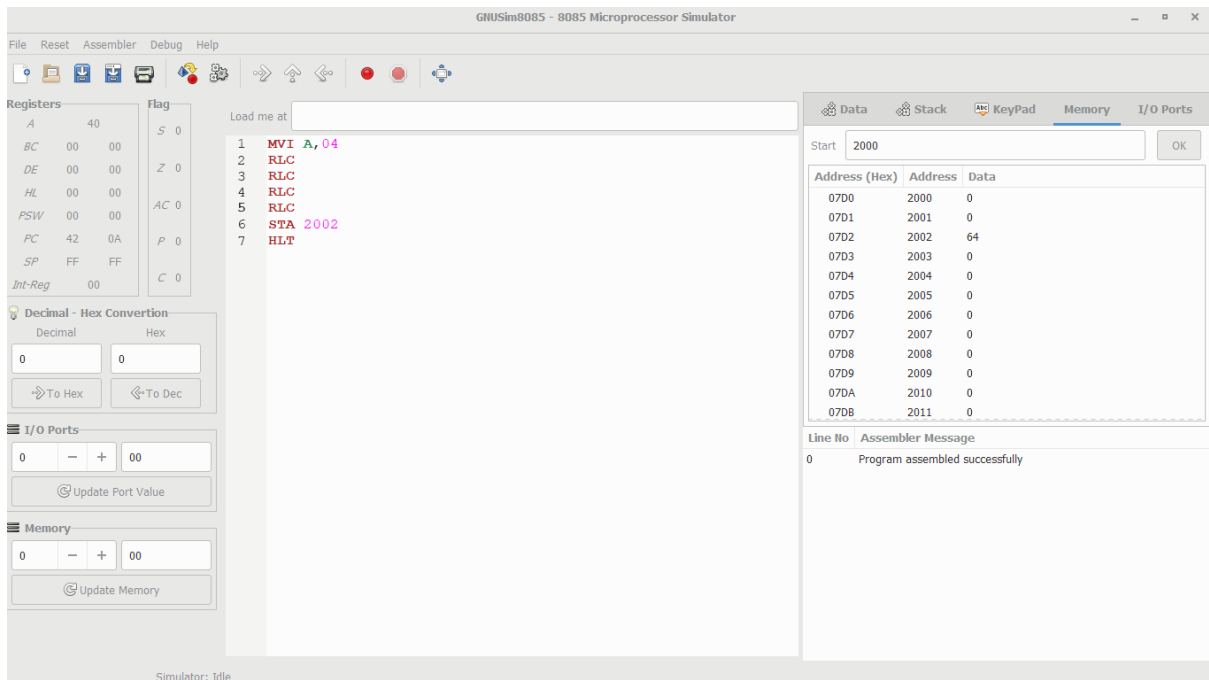
OR GATE OPERATION



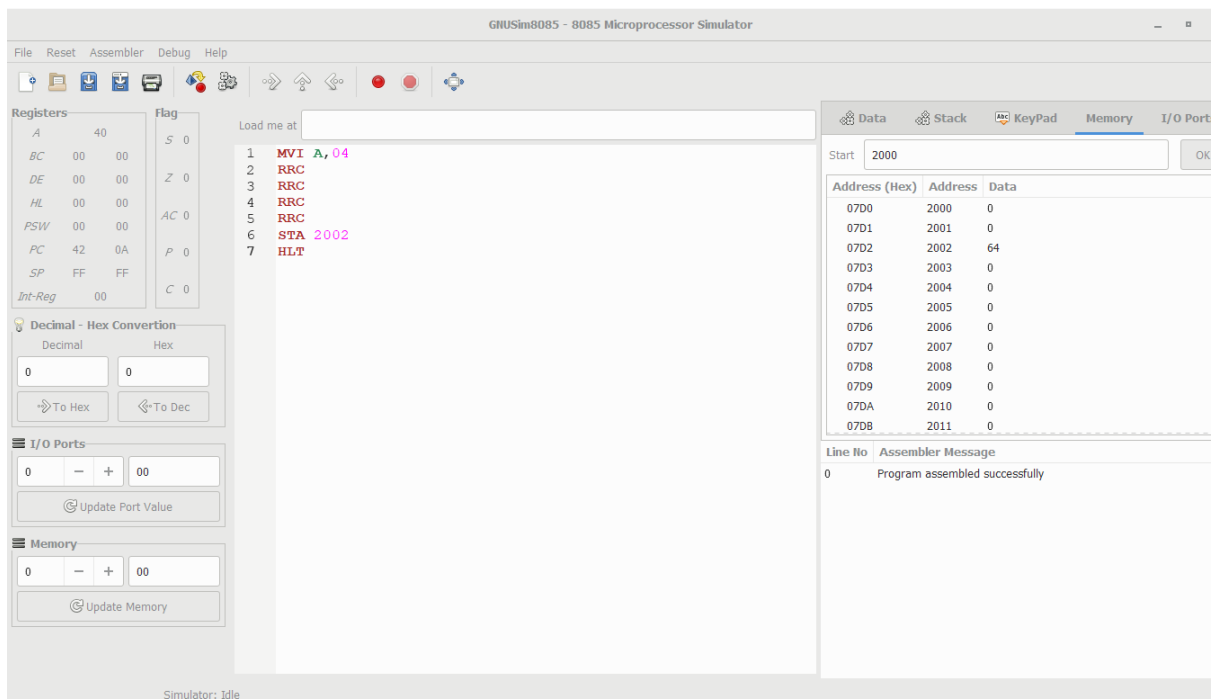
OR OPERATION



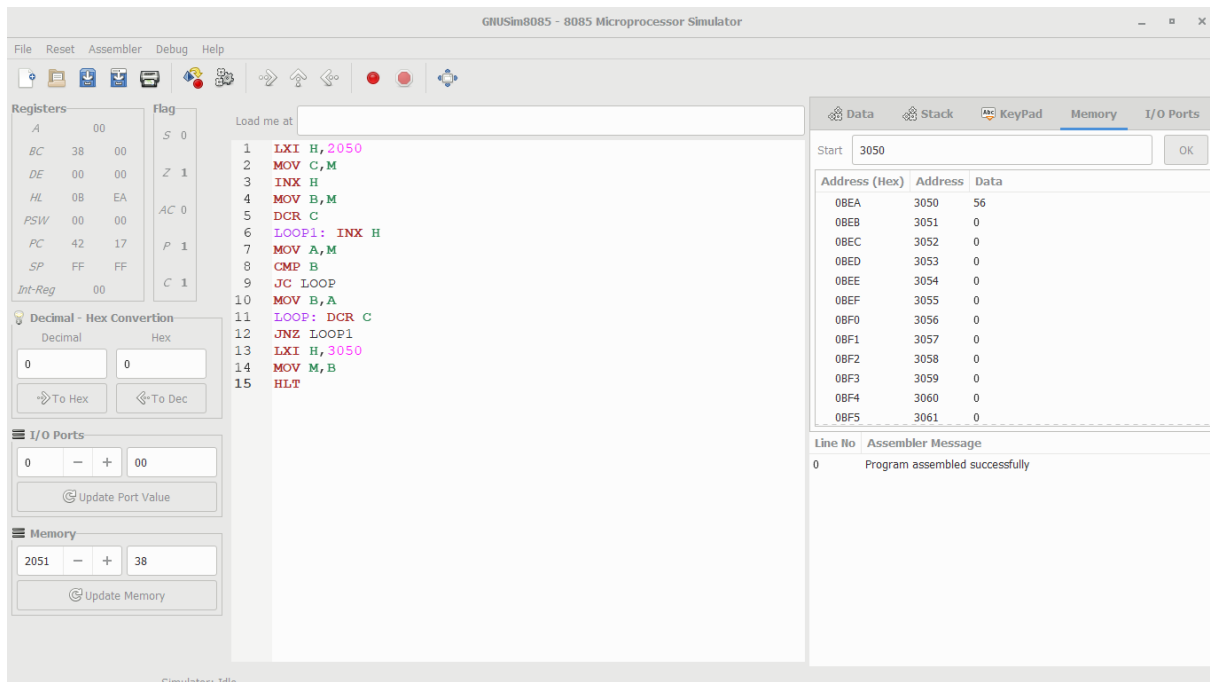
ROTATE LEFT SHIFT OPERATION



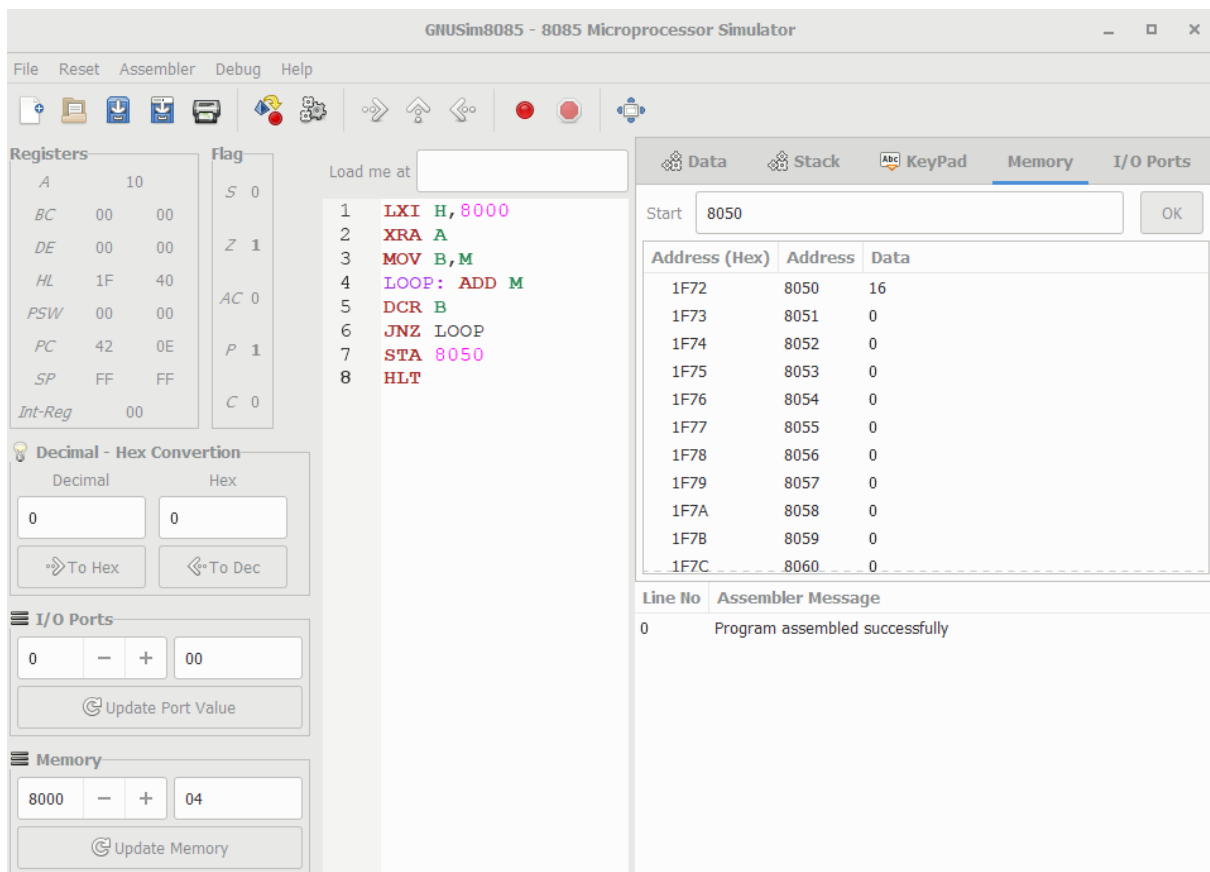
ROTATE RIGHT SHIFT OPERATION



SMALLEST NUMBER IN ARRAY



SQUARE OF THE NUMBER



SWAP

GNUSim8085 - 8085 Microprocessor Simulator

File Reset Assembler Debug Help

Registers

Register	Value
A	03
BC	03 05
DE	00 00
HL	00 00
PSW	00 00
PC	42 10
SP	FF FF
Int-Reg	00

Flag

Flag	Value
S	0
Z	0
AC	0
P	0
C	0

Load me at

1 LDA 2001
2 MOV B,A
3 LDA 2002
4 MOV C,A
5 STA 2004
6 MOV A,B
7 STA 2005
8 HLT

Decimal - Hex Conversion

Decimal: 0 Hex: 0

To Hex To Dec

I/O Ports

0 - + 00

Update Port Value

Memory

2002 - + 05

Update Memory

Data Stack KeyPad Memory I/O Ports

Start 2004 OK

Address (Hex)	Address	Data
07D4	2004	5
07D5	2005	3
07D6	2006	0
07D7	2007	0
07D8	2008	0
07D9	2009	0
07DA	2010	0
07DB	2011	0
07DC	2012	0
07DD	2013	0
07DE	2014	0

Line No Assembler Message

0 Program assembled successfully

TRANSFERRING BLOCKS IN 8085

GNUSim8085 - 8085 Microprocessor Simulator

File Reset Assembler Debug Help

Registers

Register	Value
A	1E
BC	00 00
DE	0D B2
HL	09 CA
PSW	00 00
PC	42 11
SP	FF FF
Int-Reg	00

Flag

Flag	Value
S	0
Z	1
AC	0
P	1
C	0

Load me at

1 MVI C,06
2 LXI H,2500
3 LXI D,3500
4 CLASS: MOV A,M
5 STAX D
6 INX H
7 INX D
8 DCR C
9 JNZ CLASS
10 HLT

Decimal - Hex Conversion

Decimal: 0 Hex: 0

To Hex To Dec

I/O Ports

0 - + 00

Update Port Value

Memory

2500 - + 05

Update Memory

Data Stack KeyPad Memory I/O Ports

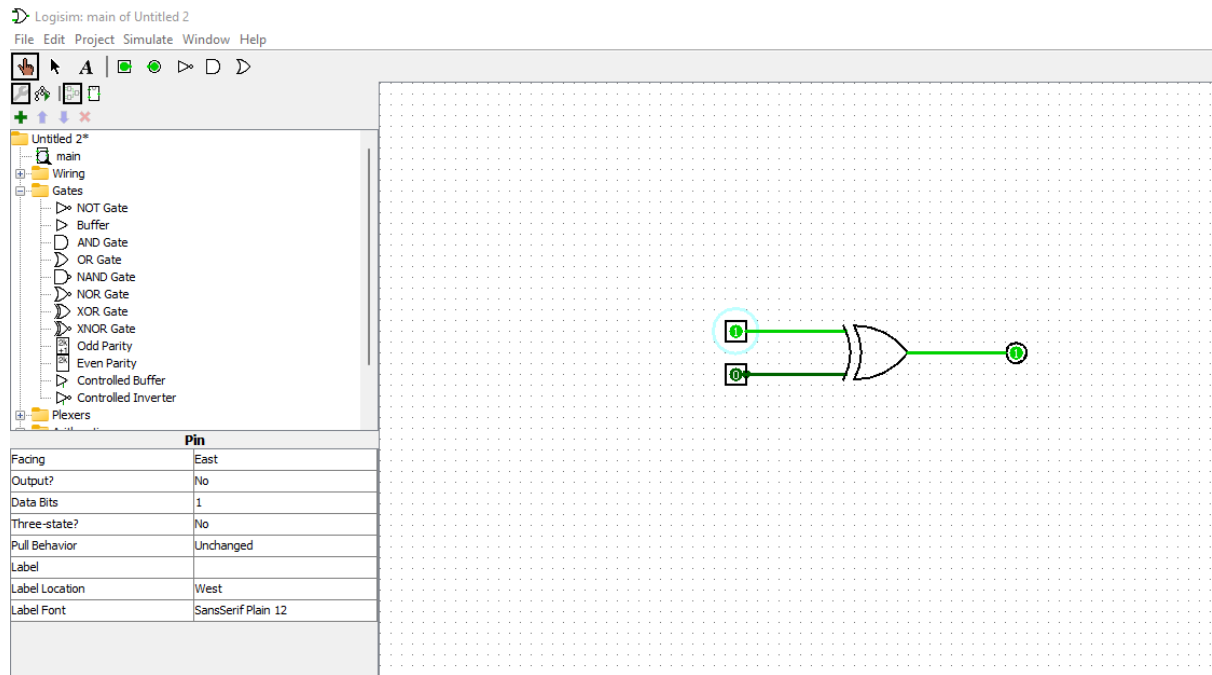
Start 3500 OK

Address (Hex)	Address	Data
0DAD	3500	5
0DAD	3501	10
0DAE	3502	15
0DAF	3503	20
0DB0	3504	25
0DB1	3505	30
0DB2	3506	0
0DB3	3507	0
0DB4	3508	0
0DB5	3509	0
0DB6	3510	0
0DB7	3511	0

Line No Assembler Message

0 Program assembled successfully

XOR GATE OPERATION



XOR OPERATION

GNUSim8085 - 8085 Microprocessor Simulator

File Reset Assembler Debug Help

Registers

Register	Value
A	02
BC	04 00
DE	00 00
HL	00 00
PSW	00 00
PC	42 09
SP	FF FF
Int-Reg	00

Flag

Flag	Value
S	0
Z	0
AC	0
P	0
C	0

Load me at

```

1 MVI A, 6
2 MVI B, 7
3 XRA B
4 STA 2100
5 HLT
  
```

Start 2100 OK

Address (Hex)	Address	Data
0834	2100	2
0835	2101	0
0836	2102	0
0837	2103	0
0838	2104	0
0839	2105	0
083A	2106	0
083B	2107	0
083C	2108	0
083D	2109	0
083E	2110	0

I/O Ports

0 - + 00

Update Port Value

Memory

2001 - + 00

Update Memory

Line No Assembler Message

0 Program assembled successfully