

RESULTADOS

Not

Hardware Simulator (2.5) - D:\Universidad\Universidad\Universidad\Arquitectura de computadores\nand2tetris\projects\01\Not.hdl

File View Run Help

Animate: Program flow Format: Decimal View: Script

Chip Name: Not Time: 0

Input pins		Output pins	
Name	Value	Name	Value
in	1	out	0

HDL

```
// This file is part of www.nand2tetris.org
// and the book "The Elements of Computing Systems"
// by Nisan and Schocken, MIT Press.
// File name: projects/01/Not.hdl

/**
 * Not gate:
 * out = not in
 */

CHIP Not {
    IN in;
    OUT out;
}
```

Internal pins

Name	Value
------	-------

```
// This file is part of www.nand2tetris.org
// and the book "The Elements of Computing Systems"
// by Nisan and Schocken, MIT Press.
// File name: projects/01/Not.tst

load Not.hdl,
output-file Not.out,
compare-to Not.cmp,
output-list in%B3.1.3 out%B3.1.3;

set in 0,
eval,
output;

set in 1,
eval,
output;
```

End of script - Comparison ended successfully

And

Hardware Simulator (2.5) - D:\Universidad\Universidad\Universidad\Arquitectura de computadores\nand2tetrís\projects\01\And.hdl

File View Run Help

Animate: Program flow Format: Decimal View: Script

Chip Name: And Time: 0

Input pins		Output pins	
Name	Value	Name	Value
a	1	out	1
b	1		

HDL

```
CHIP And {  
  IN a, b;  
  OUT out;  
  PARTS:  
    Nand (a = a, b = b, out = out1);  
    Not (in = out1, out = out);  
}
```

Internal pins

Name	Value
out1	0

```
// This file is part of www.nand2tetrís.org  
// and the book "The Elements of Computing Systems"  
// by Nisan and Schocken, MIT Press.  
// File name: projects/01/And.tst  
  
load And.hdl,  
output-file And.out,  
compare-to And.cmp,  
output-list a%B3.1.3 b%B3.1.3 out%B3.1.3;  
  
set a 0,  
set b 0,  
eval,  
output;  
  
set a 0,  
set b 1,  
eval,  
output;  
  
set a 1,  
set b 0,  
eval,  
output;  
  
set a 1,  
set b 1,  
eval,  
output;
```

End of script - Comparison ended successfully

Or

Hardware Simulator (2.5) - D:\Universidad\Universidad\Universidad\Arquitectura de computadores\nand2tetris\projects\01\Or.hdl

File View Run Help

Animate: Program flow Format: Decimal View: Script

Chip Name: Or Time: 0

Input pins		Output pins	
Name	Value	Name	Value
a	1	out	1
b	1		

Internal pins	
Name	Value
out1	0
out2	0

HDL

```
CHIP Or {  
  IN a, b;  
  OUT out;  
  
  PARTS:  
    Not (in = a, out = out1);  
    Not (in = b, out = out2);  
    Nand (a = out1, b = out2, out = out);  
}
```

```
// This file is part of www.nand2tetris.org  
// and the book "The Elements of Computing Systems"  
// by Nisan and Schocken, MIT Press.  
// File name: projects/01/Or.tst  
  
load Or.hdl,  
output-file Or.out,  
compare-to Or.cmp,  
output-list a%B3.1.3 b%B3.1.3 out%B3.1.3;  
  
set a 0,  
set b 0,  
eval,  
output;  
  
set a 0,  
set b 1,  
eval,  
output;  
  
set a 1,  
set b 0,  
eval,  
output;  
  
set a 1,  
set b 1,  
eval,  
output;
```

End of script - Comparison ended successfully

Xor

Hardware Simulator (2.5) - D:\Universidad\Universidad\Universidad\Arquitectura de computadores\nand2tetrís\projects\01\Xor.hdl

File View Run Help

Chip Name : Xor Time : 0

Input pins		Output pins	
Name	Value	Name	Value
a	1	out	0
b	1		

HDL

```
CHIP Xor {  
  IN a, b;  
  OUT out;  
  
  PARTS:  
    Nand (a = a, b = b, out = out1);  
    Or (a = a, b = b, out = out2);  
    And (a = out1, b = out2, out = out);  
}
```

Internal pins

Name	Value
out1	0
out2	1

Animate: Program flow Format: Decimal View: Script

load Xor.hdl,
output-file Xor.out,
compare-to Xor.cmp,
output-list a%B3.1.3 b%B3.1.3 out%B3.1.3;

set a 0,
set b 0,
eval,
output;

set a 0,
set b 1,
eval,
output;

set a 1,
set b 0,
eval,
output;

set a 1,
set b 1,
eval,
output;

End of script - Comparison ended successfully

Mux

Hardware Simulator (2.5) - D:\Universidad\Universidad\Universidad\Arquitectura de computadores\nand2tetris\projects\01\Mux.hdl

File View Run Help

Animate: Program flow Format: Decimal View: Script

Chip Name : Mux Time : 0

Input pins		Output pins	
Name	Value	Name	Value
a	1	out	1
b	1		
sel	1		

Internal pins	
Name	Value
notsel	0
out1	0
out2	1

```
CHIP Mux {  
  IN a, b, sel;  
  OUT out;  
  
  PARTS:  
    Not (in = sel, out = notsel);  
    And (a = a, b = notsel, out = out1);  
    And (a = sel, b = b, out = out2);  
}
```

```
eval,  
output;  
  
set sel 1,  
eval,  
output;  
  
set a 0,  
set b 1,  
set sel 0,  
eval,  
output;  
  
set sel 1,  
eval,  
output;  
  
set a 1,  
set b 0,  
set sel 0,  
eval,  
output;  
  
set sel 1,  
eval,  
output;  
  
set a 1,  
set b 1,  
set sel 0,  
eval,  
output;  
  
set sel 1,  
eval,  
output;
```

End of script - Comparison ended successfully

Dmux

Hardware Simulator (2.5) - D:\Universidad\Universidad\Universidad\Arquitectura de computadores\nand2tetris\projects\01\DMux.hdl

File View Run Help

Animate: Program flow Format: Decimal View: Script

Chip Name : DMux Time : 0

Input pins		Output pins	
Name	Value	Name	Value
in	1	a	0
sel	1	b	1

HDL

```
CHIP DMux {  
  IN in, sel;  
  OUT a, b;  
  
  PARTS:  
  
  Not (in = sel, out = notsel);  
  
  And (a = notsel, b = in, out = a);  
  
  And (a = in, b = sel, out = b);  
}
```

Internal pins

Name	Value
notsel	0

```
// This file is part of www.nand2tetris.org  
// and the book "The Elements of Computing Systems"  
// by Nisan and Schocken, MIT Press.  
// File name: projects/01/DMux.tst  
  
load DMux.hdl,  
output-file DMux.out,  
compare-to DMux.cmp,  
output-list in%B3.1.3 sel%B3.1.3 a%B3.1.3 b%B3.1.3;  
  
set in 0,  
set sel 0,  
eval,  
output;  
  
set sel 1,  
eval,  
output;  
  
set in 1,  
set sel 0,  
eval,  
output;  
  
set sel 1,  
eval,  
output;
```

End of script - Comparison ended successfully

Not16

Hardware Simulator (2.5) - D:\Universidad\Universidad\Universidad\Arquitectura de computadores\nand2tetris\projects\01\Not16.hdl

File View Run Help

Chip Name : Not16 Time : 0

Input pins		Output pins	
Name	Value	Name	Value
in[16]	4660	out[16]	-4661

HDL

```
CHIP Not16 {  
  IN in[16];  
  OUT out[16];  
  PARTS:  
    Not (in = in[15], out = out[15]);  
    Not (in = in[14], out = out[14]);  
    Not (in = in[13], out = out[13]);  
}
```

Internal pins

Name	Value
------	-------

Animate: Program flow Format: Decimal View: Script

```
// This file is part of www.nand2tetris.org  
// and the book "The Elements of Computing Systems"  
// by Nisan and Schocken, MIT Press.  
// File name: projects/01/Not16.tst  
  
load Not16.hdl,  
output-file Not16.out,  
compare-to Not16.cmp,  
output-list in%B1.16.1 out%B1.16.1;  
  
set in %B00000000000000000000,  
eval,  
output;  
  
set in %B11111111111111111111,  
eval,  
output;  
  
set in %B10101010101010101010,  
eval,  
output;  
  
set in %B0011110011000011,  
eval,  
output;  
  
set in %B0001001000110100,  
eval,  
output;
```

End of script - Comparison ended successfully

And16

Hardware Simulator (2.5) - D:\Universidad\Universidad\Universidad\Arquitectura de computadores local\nand2tetris\projects\01\And16.hdl

File View Run Help

Chip Name: **And16** Time: **0**

Input pins		Output pins	
Name	Value	Name	Value
a[16]	4660	out[16]	4148
b[16]	-26506		

HDL		Internal pins	
		Name	Value
CHIP And16 { IN a[16], b[16]; OUT out[16]; PARTS: And (a = a[15], b = b[15], c And (a = a[14], b = b[14], c And (a = a[13], b = b[13], c			

Animate: Program flow Format: Decimal View: Script

```
// File name: projects/01/And16.tst  
  
load And16.hdl,  
output-file And16.out,  
compare-to And16.cmp,  
output-list a%B1.16.1 b%B1.16.1 out%B1.16.1;  
  
set a $B0000000000000000,  
set b $B0000000000000000,  
eval,  
output;  
  
set a $B0000000000000000,  
set b $B1111111111111111,  
eval,  
output;  
  
set a $B1111111111111111,  
set b $B1111111111111111,  
eval,  
output;  
  
set a $B1010101010101010,  
set b $B0101010101010101,  
eval,  
output;  
  
set a $B0011110011000011,  
set b $B0000111111110000,  
eval,  
output;  
  
set a $B0001001000110100,  
set b $B1001100001110110,  
eval,  
output;
```

End of script - Comparison ended successfully

Or16

Hardware Simulator (2.5) - D:\Universidad\Universidad\Universidad\Arquitectura de computadores\nand2tetris\projects\01\Or16.hdl

File View Run Help

Chip Name : Or16 Time : 0

Input pins		Output pins	
Name	Value	Name	Value
a[16]	4660	out[16]	-25994
b[16]	-26506		

Internal pins	
Name	Value

HDL

```
CHIP Or16 {  
  IN a[16], b[16];  
  OUT out[16];  
  
  PARTS:  
  
  Or (a = a[15], b = b[15], out = out[15]);  
  
  Or (a = a[14], b = b[14], out = out[14]);  
  
  Or (a = a[13], b = b[13], out = out[13]);  
}
```

// File name: projects/01/Or16.tst

```
load Or16.hdl,  
output-file Or16.out,  
compare-to Or16.cmp,  
output-list a%B1.16.1 b%B1.16.1 out%B1.16.1;  
  
set a %B00000000000000000000,  
set b %B00000000000000000000,  
eval,  
output;  
  
set a %B00000000000000000000,  
set b %B11111111111111111111,  
eval,  
output;  
  
set a %B11111111111111111111,  
set b %B11111111111111111111,  
eval,  
output;  
  
set a %B10101010101010101010,  
set b %B01010101010101010101,  
eval,  
output;  
  
set a %B0011110011000011,  
set b %B00001111111110000,  
eval,  
output;  
  
set a %B0001001000110100,  
set b %B1001100001110110,  
eval,  
output;
```

End of script - Comparison ended successfully

Mux16

Hardware Simulator (2.5) - D:\Universidad\Universidad\Universidad\Arquitectura de computadores\nand2tetris\projects\01\Mux16.hdl

File View Run Help

Animate: Program flow Format: Decimal View: Script

Chip Name : Mux16 Time : 0

Input pins		Output pins	
Name	Value	Name	Value
a[16]	-21846	out[16]	21845
b[16]	21845		
sel	1		

Internal pins	
Name	Value

HDL

```
CHIP Mux16 {  
  IN a[16], b[16], sel;  
  OUT out[16];  
  PARTS:  
    Mux (a = a[15], b = b[15], sel = sel, out =  
    Mux (a = a[14], b = b[14], sel = sel, out =  
    Mux (a = a[13], b = b[13], sel = sel, out =
```

```
eval,  
output;  
  
set sel 1,  
eval,  
output;  
  
set a %B0000000000000000,  
set b %B0001001000110100,  
set sel 0,  
eval,  
output;  
  
set sel 1,  
eval,  
output;  
  
set a %B1001100001110110,  
set b %B0000000000000000,  
set sel 0,  
eval,  
output;  
  
set sel 1,  
eval,  
output;  
  
set a %B1010101010101010,  
set b %B0101010101010101,  
set sel 0,  
eval,  
output;  
  
set sel 1,  
eval,  
output;
```

End of script - Comparison ended successfully

Or8Way

Hardware Simulator (2.5) - D:\Universidad\Universidad\Universidad\Arquitectura de computadores\nand2tetrís\projects\01\Or8Way.hdl

File View Run Help

Chip Name : Or8Way Time : 0

Input pins		Output pins	
Name	Value	Name	Value
in[8]	38	out	1

Internal pins	
Name	Value
out1	1
out2	1
out3	1
out4	0
out5	1
out6	1

HDL

```
CHIP Or8Way {  
  IN in[8];  
  OUT out;  
  PARTS:  
  Or (a = in[0], b = in[1], out = out1);  
  Or (a = in[2], b = in[3], out = out2);  
  Or (a = in[4], b = in[5], out = out3);  
}
```

Animate: Program flow Format: Decimal View: Script

```
// This file is part of www.nand2tetrís.org  
// and the book "The Elements of Computing Systems"  
// by Nisan and Schocken, MIT Press.  
// File name: projects/01/Or8Way.tst  
  
load Or8Way.hdl,  
output-file Or8Way.out,  
compare-to Or8Way.cmp,  
output-list in%B2.8.2 out%B2.1.2;  
  
set in %B00000000,  
eval,  
output;  
  
set in %B11111111,  
eval,  
output;  
  
set in %B00010000,  
eval,  
output;  
  
set in %B00000001,  
eval,  
output;  
  
set in %B00100110,  
eval,  
output;
```

End of script - Comparison ended successfully

Mux4Way16

Hardware Simulator (2.5) - D:\Universidad\Universidad\Universidad\Arquitectura de computadores\nand2tetrís\projects\01\Mux4Way16.hdl

File View Run Help

Animate: Program flow Format: Decimal View: Script

Chip Name : Mux4Way16 Time : 0

Input pins		Output pins	
Name	Value	Name	Value
a[16]	4660	out[16]	21845
b[16]	-26506		
c[16]	-21846		
d[16]	21845		
sel[2]	3		

Internal pins	
Name	Value
out1[16]	-26506
out2[16]	21845

HDL

```
CHIP Mux4Way16 {  
  IN a[16], b[16], c[16], d[16], sel[2];  
  OUT out[16];  
  
  PARTS:  
    Mux16 (a = a, b = b, sel = sel[0], out = out1);  
    Mux16 (a = c, b = d, sel = sel[0], out = out2);  
    Mux16 (a = out1, b = out2, sel = sel[1], out = out);  
}
```

```
set d 0,  
set sel 0,  
eval,  
output;  
  
set sel 1,  
eval,  
output;  
  
set sel 2,  
eval,  
output;  
  
set sel 3,  
eval,  
output;  
  
set a %B0001001000110100,  
set b %B1001100001110110,  
set c %B1010101010101010,  
set d %B0101010101010101,  
set sel 0,  
eval,  
output;  
  
set sel 1,  
eval,  
output;  
  
set sel 2,  
eval,  
output;  
  
set sel 3,  
eval,  
output;
```

End of script - Comparison ended successfully

Mux8Way16

Hardware Simulator (2.5) - D:\Universidad\Universidad\Universidad\Arquitectura de computadores\nand2tetris\projects\01\Mux8Way16.hdl

File View Run Help

Animate: Program flow Format: Decimal View: Script

Chip Name: Mux8Way16 Time: 0

Input pins		Output pins	
Name	Value	Name	Value
a[16]	4660	out[16]	-30293
b[16]	9029		
c[16]	13398		
d[16]	17767		
e[16]	22136		
f[16]	26505		
g[16]	30874		
h[16]	-30293		
sel[3]	7		

Internal pins	
Name	Value
out1[16]	17767
out2[16]	-30293

HDL

```
CHIP Mux8Way16 {  
  IN a[16], b[16], c[16], d[16],  
    e[16], f[16], g[16], h[16],  
  sel[3];  
  OUT out[16];  
  PARTS:  
  Mux4Way16 (a = a, b = b, c = c, d = d, sel
```

```
set d %B0100010101100111,  
set e %B0101011001111000,  
set f %B0110011110001001,  
set g %B011100010011010,  
set h %B1000100110101011,  
set sel 0,  
eval,  
output;  
  
set sel 1,  
eval,  
output;  
  
set sel 2,  
eval,  
output;  
  
set sel 3,  
eval,  
output;  
  
set sel 4,  
eval,  
output;  
  
set sel 5,  
eval,  
output;  
  
set sel 6,  
eval,  
output;  
  
set sel 7,  
eval,  
output;
```

End of script - Comparison ended successfully

Dmux4Way

Hardware Simulator (2.5) - D:\Universidad\Universidad\Universidad\Arquitectura de computadores\nand2tetrís\projects\01\DMux4Way.hdl

File View Run Help

Animate: Program flow Format: Decimal View: Script

Chip Name : DMux4Way Time : 0

Input pins		Output pins	
Name	Value	Name	Value
in	1	a	0
sel[2]	3	b	0
		c	0
		d	1

Internal pins	
Name	Value
out1	0
out2	1

HDL

```
CHIP DMux4Way {  
  IN in, sel[2];  
  OUT a, b, c, d;  
  
  PARTS:  
  
  DMux (in = in, sel = sel[1], a = out1, b = out2);  
  DMux (in = out1, sel = sel[0], a = a, b = b);  
  DMux (in = out2, sel = sel[0], a = c, b = d);  
}
```

compare-to DMux4Way.cmp,
output-list in%B2.1.2 sel%B2.2.2 a%B2.1.2 b%B2.1.2 c%B2.1.2 d%B2.1.2;

```
set in 0,  
set sel %B00,  
eval,  
output;  
  
set sel %B01,  
eval,  
output;  
  
set sel %B10,  
eval,  
output;  
  
set sel %B11,  
eval,  
output;  
  
set in 1,  
set sel %B00,  
eval,  
output;  
  
set sel %B01,  
eval,  
output;  
  
set sel %B10,  
eval,  
output;  
  
set sel %B11,  
eval,  
output;
```

End of script - Comparison ended successfully

Dmux8Way

Hardware Simulator (2.5) - D:\Universidad\Universidad\Universidad\Arquitectura de computadores\nand2tetris\projects\01\DMux8Way.hdl

File View Run Help

Chip Name : DMux8Way Time : 0

Input pins		Output pins	
Name	Value	Name	Value
in	1	a	0
sel[3]	7	b	0
		c	0
		d	0
		e	0
		f	0
		g	0
		h	1

Internal pins	
Name	Value
out1	0
out2	1

HDL

```
CHIP DMux8Way {  
  IN in, sel[3];  
  
  OUT a, b, c, d, e, f, g, h;  
  
  PARTS:  
  
  DMux (in = in, sel = sel[2], a = out1, b = out2, c = out3, d = out4, e = out5, f = out6, g = out7, h = out8);  
  
  DMux4Way (in = out1, sel = sel[0..1], a = out1, b = out2, c = out3, d = out4);  
  
  DMux4Way (in = out2, sel = sel[0..1], a = out5, b = out6, c = out7, d = out8);  
}
```

```
set sel %B111,  
eval,  
output;  
  
set in 1,  
set sel %B000,  
eval,  
output;  
  
set sel %B001,  
eval,  
output;  
  
set sel %B010,  
eval,  
output;  
  
set sel %B011,  
eval,  
output;  
  
set sel %B100,  
eval,  
output;  
  
set sel %B101,  
eval,  
output;  
  
set sel %B110,  
eval,  
output;  
  
set sel %B111,  
eval,  
output;
```

End of script - Comparison ended successfully