



Applications

Places

System



File Edit View Search Tools Documents



Open



Save



Un



not\_c.v



```
module not_c(a,y);
```

```
    input a;
```

```
    output y;
```

```
    supply1 vdd;
```

```
    supply0 vss;
```

```
    pmos P1(y,vdd,a);
```

```
    nmos N1(y,vss,a);
```

```
endmodule
```



Applications

Places

System



...



...



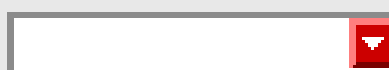
...



File Edit View Simulation Windows Help



Text Search:



20ns + 0



```
ncsim>
ncsim> database -open waves -into waves.shm -default
Created default SHM database waves
ncsim> probe -create -shm not_c_tb.a not_c_tb.y
Created probe 1
ncsim> run
a=0,y=1
a=1,y=0
Simulation complete via $finish(1) at time 20 NS + 0
./not_c_tb.v:21      $finish;
ncsim>
```



Applications

Places

System



[Con...



c - Fi...



File Edit View Search Tools Documents Help



Open ▾



Save



Undo



not\_c\_tb.v ✕

```
module not_c_tb();

    reg a;
    wire y;

    not_c DUT(a,y);

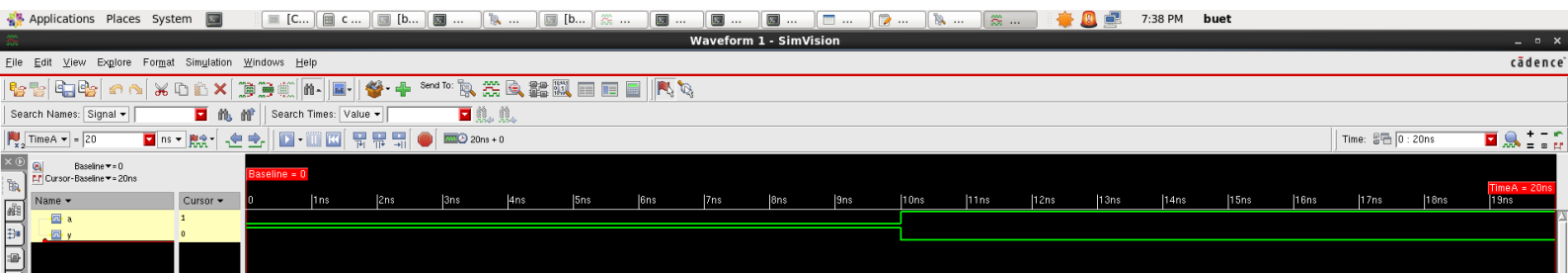
    initial
    begin

        $monitor("a=%b,y=%b",a,y);

    end

    initial
    begin

        #0;a=0;
        #10;a=1;
        #10;
        $finish;
    end
endmodule
```





Applications

Places

System



File Edit View Search Tools Documents H



Open



Save



Und



nand\_c.v



```
module nand_c(a,b,y);
```

```
    input a,b;
```

```
    output y;
```

```
    supply1 vdd;
```

```
    supply0 vss;
```

```
    wire w;
```

```
    pmos P1(y,vdd,a);
```

```
    pmos P2(y,vdd,b);
```

```
    nmos N1(w,vss,b);
```

```
    nmos N2(y,w,a);
```

```
endmodule
```

```
ncsim>
ncsim> database -open waves -into waves.shm -default
Created default SHM database waves
ncsim> probe -create -shm nand_c_tb.a nand_c_tb.b nand_c_tb.y
Created probe 1
ncsim> run
Time=          0, a=0, b=0, y=1
Time=         10, a=0, b=1, y=1
Time=         20, a=1, b=0, y=1
Time=         30, a=1, b=1, y=0
Simulation complete via $finish(1) at time 40 NS + 0
./nand_c_tb.v:20      $finish;
ncsim>
```

nand\_c\_tb.v

```
module nand_c_tb();

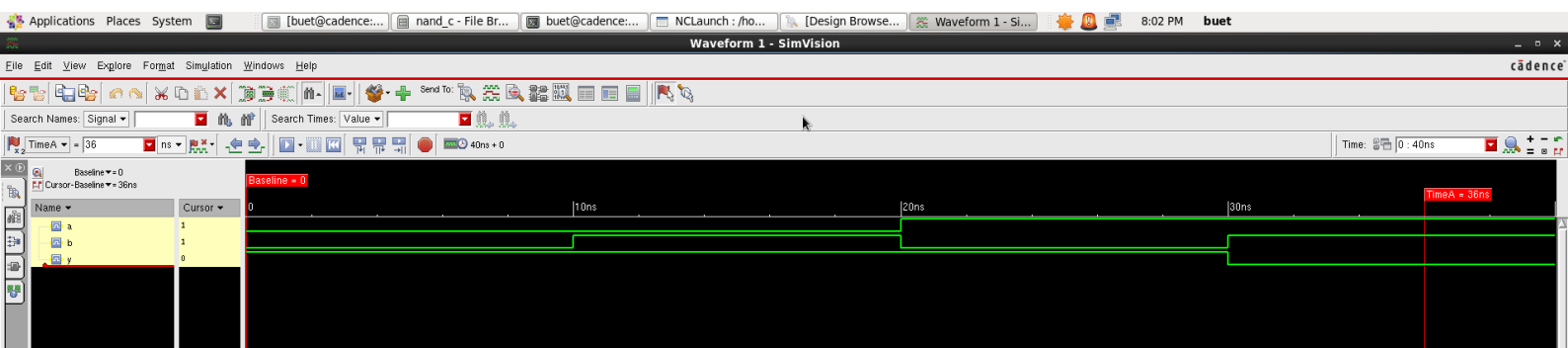
    reg a, b;
    wire y;

    nand_c NA1(a, b, y);

    initial
    begin
        $monitor("Time=%t,a=%b, b=%b, y=%b",$time, a, b, y);
    end

    initial
    begin
        #0; {a, b} = 2'd0;
        #10; {a, b} = 2'd1;
        #10; {a, b} = 2'd2;
        #10; {a, b} = 2'd3;
        #10;
        $finish;
    end

endmodule
```







Applications

Places

System



[buet@o



File Edit View Search Tools Documents Help



Open



Save



Undo



and\_c.v



```
module and_c(a,b,y);
```

```
    input a,b;
```

```
    output y;
```

```
    wire w;
```

```
    nand_c NA1(a,b,w);
```

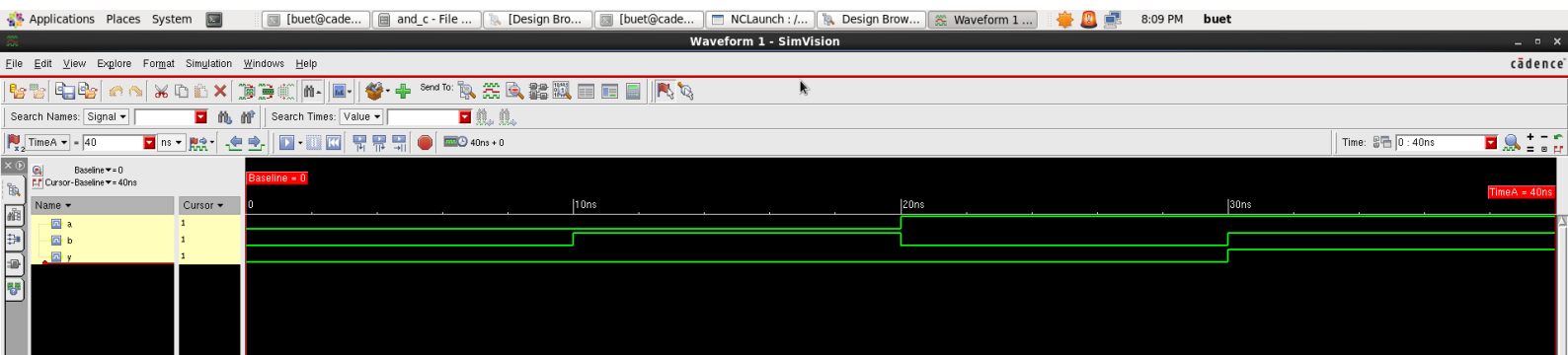
```
    not_c NOT1(w,y);
```

```
endmodule
```



```
ncsim>
ncsim> database -open waves -into waves.shm -default
Created default SHM database waves
ncsim> probe -create -shm and_c_tb.a and_c_tb.b and_c_tb.y
Created probe 1
ncsim> run
Time=          0, a=0, b=0, y=0
Time=         10, a=0, b=1, y=0
Time=         20, a=1, b=0, y=0
Time=         30, a=1, b=1, y=1
Simulation complete via $finish(1) at time 40 NS + 0
./and_c_tb.v:20      $finish;
ncsim>
```







Applications

Places

System



[buet@cadenc



File Edit View Search Tools Documents Help



Open



Save



Undo



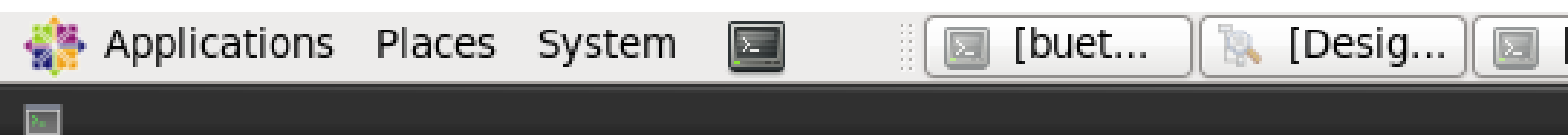
xnor\_c.v

**module** xnor\_c(a,b,y);    **input** a,b;    **output** y;    **supply1** vdd;    **supply0** vss;    **wire** [4:0]w;

not\_c NOT1(a,w[0]);

not\_c NOT2(b,w[1]);

**pmos** P1(w[2],vdd,w[0]);    **pmos** P2(w[2],vdd,b);    **pmos** P3(y,w[2],w[1]);    **pmos** P4(y,w[2],a);    **nmos** N1(y,w[3],b);    **nmos** N2(w[3],vss,w[0]);    **nmos** N3(y,w[4],w[1]);    **nmos** N4(w[4],vss,a);**endmodule**



File Edit View Simulation Windows Help



```
ncsim>
ncsim> database -open waves -into waves.shm -default
Created default SHM database waves
ncsim> probe -create -shm xnor_c_tb.a xnor_c_tb.b xnor_c_tb.y
Created probe 1
ncsim> run
Time=          0,a=0, b=0, y=1
Time=         10,a=0, b=1, y=0
Time=         20,a=1, b=0, y=0
Time=         30,a=1, b=1, y=1
Simulation complete via $finish(1) at time 40 NS + 0
./xnor_c_tb.v:20          $finish;
ncsim> |
```

xnor\_c\_tb.v

```
module xnor_c_tb();

    reg a, b;
    wire y;

    xnor_c A1(a, b, y);

    initial
    begin
        $monitor("Time=%t,a=%b, b=%b, y=%b",$time, a, b, y);
    end

    initial
    begin
        #0; {a, b} = 2'd0;
        #10; {a, b} = 2'd1;
        #10; {a, b} = 2'd2;
        #10; {a, b} = 2'd3;
        #10;
        $finish;
    end

endmodule
```







Applications

Places

System



File Edit View Search Tools Documents



Open



Save



Un



xor\_c.v



```
module xor_c(a,b,y);
```

```
    input a,b;
```

```
    output y;
```

```
    wire w;
```

```
    xnor_c XN1(a,b,w);
```

```
    not_c NOT1(w,y);
```

```
endmodule
```





Applications

Places

System



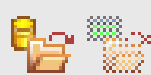
[buet...



xor\_c ...



File Edit View Simulation Windows Help



Text Search:

































































































































































































































































































































xor\_c\_tb.v

```
module xor_c_tb();

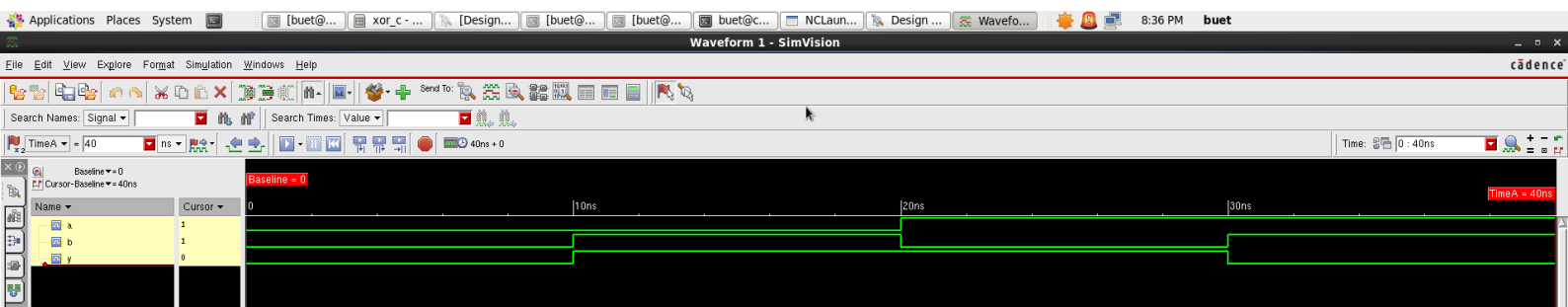
    reg a, b;
    wire y;

    xor_c A1(a, b, y);

    initial
    begin
        $monitor("Time=%t,a=%b, b=%b, y=%b",$time, a, b, y);
    end

    initial
    begin
        #0; {a, b} = 2'd0;
        #10; {a, b} = 2'd1;
        #10; {a, b} = 2'd2;
        #10; {a, b} = 2'd3;
        #10;
        $finish;
    end

endmodule
```





Applications

Places

System



[buet@



File Edit View Search Tools Documents Help



Open



Save



Undo



nor\_c.v



```
module nor_c(a,b,y);
```

```
    input a,b;
```

```
    output y;
```

```
    wire w;
```

```
    supply1 vdd;
```

```
    supply0 vss;
```

```
    pmos P1(w,vdd,a);
```

```
    pmos P2(y,w,b);
```

```
    nmos N1(y,vss,a);
```

```
    nmos N2(y,vss,b);
```

```
endmodule
```



Applications

Places

System



[buet@ca...



File Edit View Simulation Windows Help



Text Search:



40ns + 0



```
ncsim>
ncsim> database -open waves -into waves.shm -default
Created default SHM database waves
ncsim> probe -create -shm nor_c_tb.a nor_c_tb.b nor_c_tb.y
Created probe 1
ncsim> run
Time=          0,a=0, b=0, y=1
Time=         10,a=0, b=1, y=0
Time=         20,a=1, b=0, y=0
Time=         30,a=1, b=1, y=0
Simulation complete via $finish(1) at time 40 NS + 0
./nor_c_tb.v:20      $finish;
ncsim>
```



Applications Places System



[buet@cadence:~/Doc...



File Edit View Search Tools Documents Help



Open ▾



Save



Undo



nor\_c\_tb.v ✕

```
module nor_c_tb();

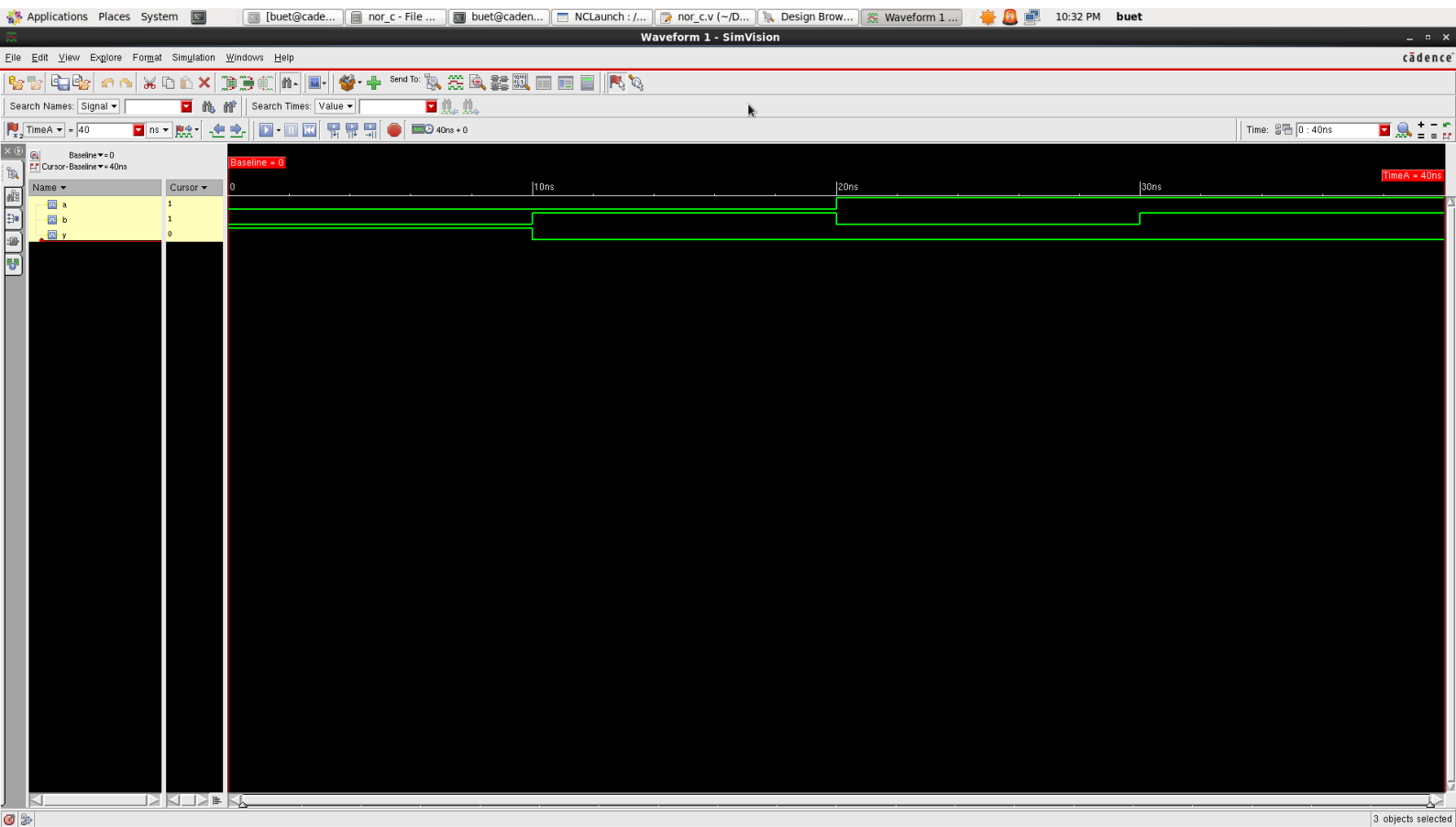
    reg a, b;
    wire y;

    nor_c N01(a, b, y);

    initial
    begin
        $monitor("Time=%t,a=%b, b=%b, y=%b",$time, a, b, y);
    end

    initial
    begin
        #0; {a, b} = 2'd0;
        #10; {a, b} = 2'd1;
        #10; {a, b} = 2'd2;
        #10; {a, b} = 2'd3;
        #10;
        $finish;
    end

endmodule
```







Applications

Places

System



File Edit View Search Tools Documents



Open



Save



Un



or\_c.v



```
module or_c(a,b,y);
```

```
    input a,b;
```

```
    output y;
```

```
    wire w;
```

```
    nor_c N01(a,b,w);
```

```
    not_c N1(w,y);
```

```
endmodule
```





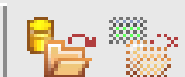
Applications Places System



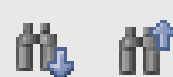
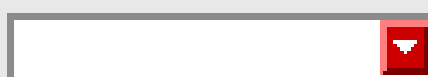
or\_c - File Brow...



File Edit View Simulation Windows Help



Text Search:



run 40ns + 0



```
ncsim>
ncsim> database -open waves -into waves.shm -default
Created default SHM database waves
ncsim> probe -create -shm or_c_tb.a or_c_tb.b or_c_tb.y
Created probe 1
ncsim> run
Time=          0, a=0, b=0, y=0
Time=         10, a=0, b=1, y=1
Time=         20, a=1, b=0, y=1
Time=         30, a=1, b=1, y=1
Simulation complete via $finish(1) at time 40 NS + 0
./or_c_tb.v:20      $finish;
ncsim>
```

or\_c\_tb.v

```
module or_c_tb();

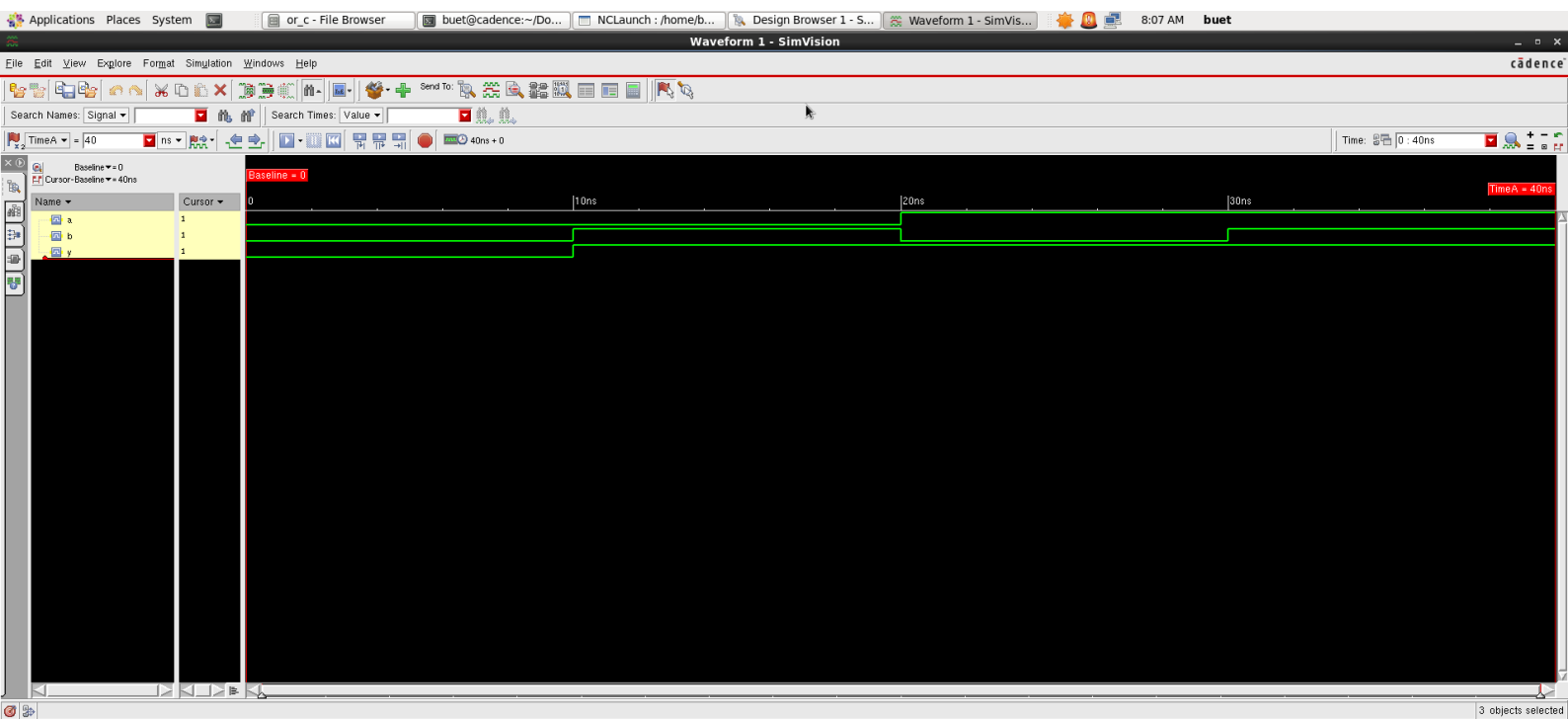
    reg a, b;
    wire y;

    or_c 01(a, b, y);

    initial
    begin
        $monitor("Time=%t,a=%b, b=%b, y=%b",$time, a, b, y);
    end

    initial
    begin
        #0; {a, b} = 2'd0;
        #10; {a, b} = 2'd1;
        #10; {a, b} = 2'd2;
        #10; {a, b} = 2'd3;
        #10;
        $finish;
    end

endmodule
```



3 objects selected



Applications

Places

System



full\_subtr



File Edit View Search Tools Documents Help



Open



Save



Undo



full\_subtractor\_c.v



```
module full_subtractor_c(a,b,bin,diff,bout);
```

```
    input a,b,bin;
```

```
    output diff,bout;
```

```
    wire [4:0]w;
```

```
    xor_c X1(a,b,w[0]);
```

```
    xor_c X2(w[0],bin,diff);
```

```
    and_c A1(~a,b,w[1]);
```

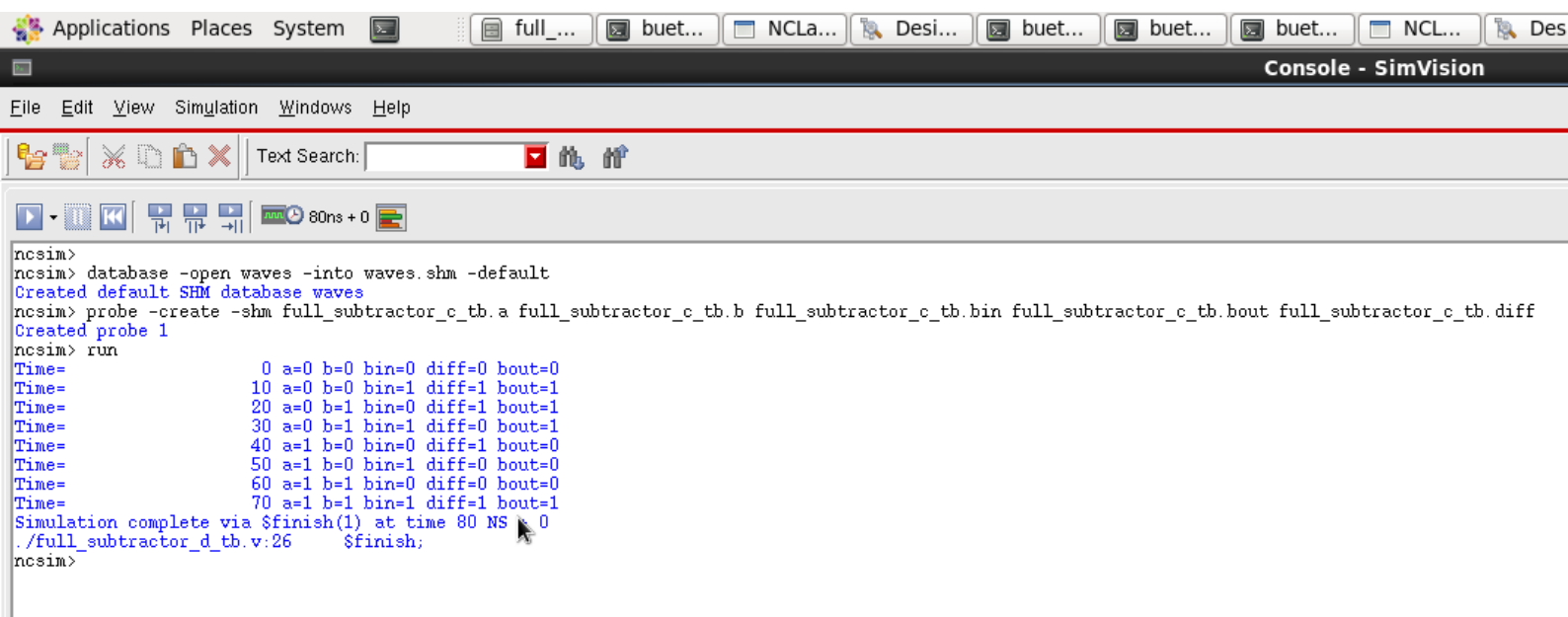
```
    and_c A2(b,bin,w[2]);
```

```
    and_c A3(bin,~a,w[3]);
```

```
    or_c O3(w[1],w[2],w[4]);
```

```
    or_c O4(w[3],w[4],bout);
```

```
endmodule
```



```
module full_subtractor_c_tb();

    reg a,b,bin;
    wire diff,bout;

    full_subtractor_c FS1(a,b,bin,diff,bout);

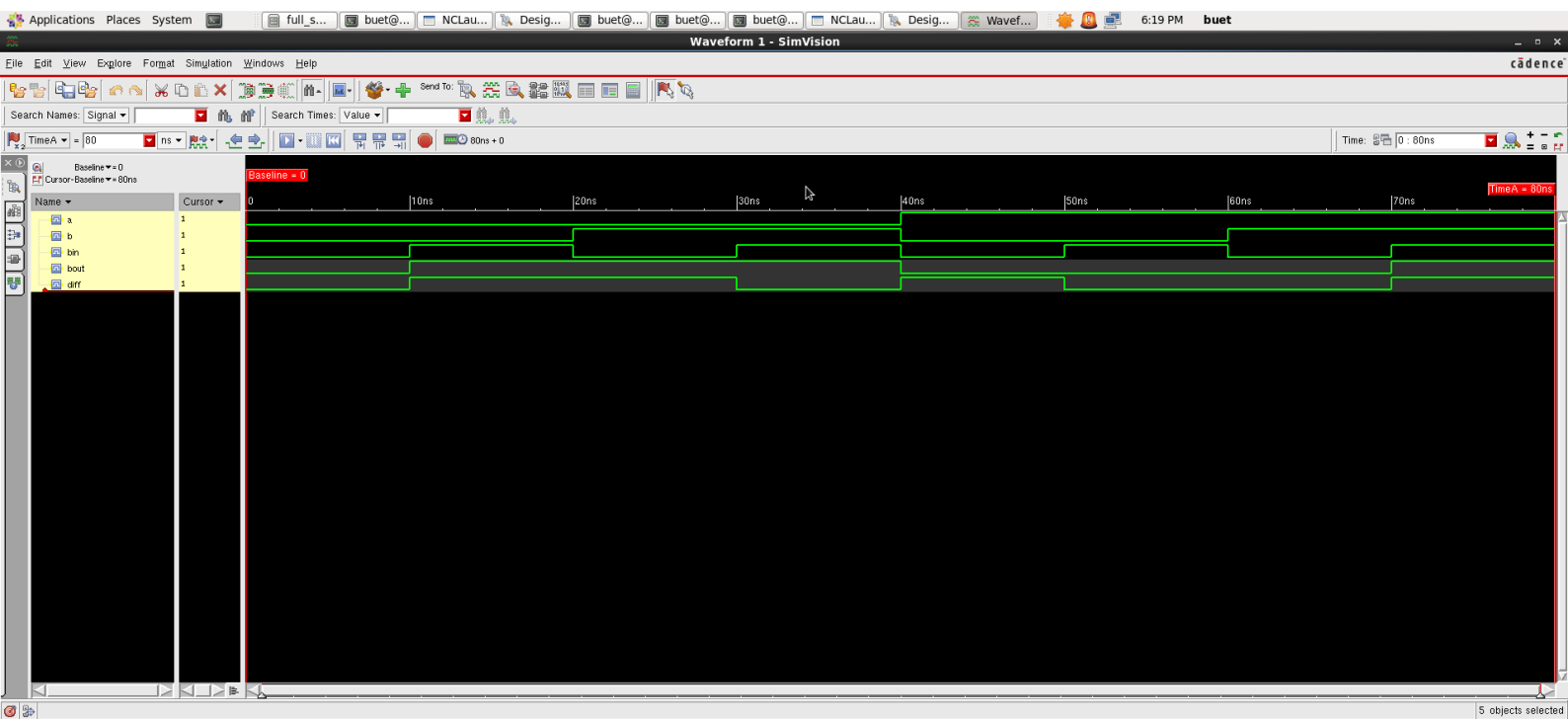
    initial
    begin

        $monitor("Time=%t a=%b b=%b bin=%b diff=%b bout=%b", $time,a,b,bin,diff,bout);

    end
    initial
    begin

        #0; {a,b,bin}=3'd0;
        #10; {a,b,bin}=3'd1;
        #10; {a,b,bin}=3'd2;
        #10; {a,b,bin}=3'd3;
        #10; {a,b,bin}=3'd4;
        #10; {a,b,bin}=3'd5;
        #10; {a,b,bin}=3'd6;
        #10; {a,b,bin}=3'd7;
        #10;
        $finish;

    end
endmodule
```







Applications

Places

System



g - File Bro



File Edit View Search Tools Documents Help



Open



Save



Undo



full\_subtractor\_g\_tb.v



full\_subtractor\_g.v



```
module full_subtractor_g(a,b,bin,diff,bout);
```

```
    input a,b,bin;
```

```
    output diff,bout;
```

```
    wire [3:0]w;
```

```
    xor X1(diff,a,b,bin);
```

```
    not N1(w[0],a);
```

```
    and A1(w[1],w[0],b);
```

```
    and A2(w[2],b,bin);
```

```
    and A3(w[3],w[0],bin);
```

```
    or O3(bout,w[1],w[2],w[3]);
```

```
endmodule
```

ApplicationsPlacesSystemg - Fil...buet@...NCLau...Desig...buet@...NCLau...full\_s...Desig...

Console - SimVision

FileEditViewSimulationWindowsHelp

Text Search:

80ns + 0

```
ncsim>
ncsim> database -open waves -into waves.shm -default
Created default SHM database waves
ncsim> probe -create -shm full_subtractor_g_tb.a full_subtractor_g_tb.b full_subtractor_g_tb.bin full_subtractor_g_tb.bout full_subtractor_g_tb.diff
Created probe 1
ncsim> run
Time=      0 a=0 b=0 bin=0 diff=0 bout=0
Time=     10 a=0 b=0 bin=1 diff=1 bout=1
Time=     20 a=0 b=1 bin=0 diff=1 bout=1
Time=     30 a=0 b=1 bin=1 diff=0 bout=1
Time=     40 a=1 b=0 bin=0 diff=1 bout=0
Time=     50 a=1 b=0 bin=1 diff=0 bout=0
Time=     60 a=1 b=1 bin=0 diff=0 bout=0
Time=     70 a=1 b=1 bin=1 diff=1 bout=1
Simulation complete via $finish(1) at time 80 NS + 0
./full_subtractor_g_tb.v:26      $finish;
ncsim>
```

```
module full_subtractor_g_tb();

    reg a,b,bin;
    wire diff,bout;

    full_subtractor_g FS1(a,b,bin,diff,bout);

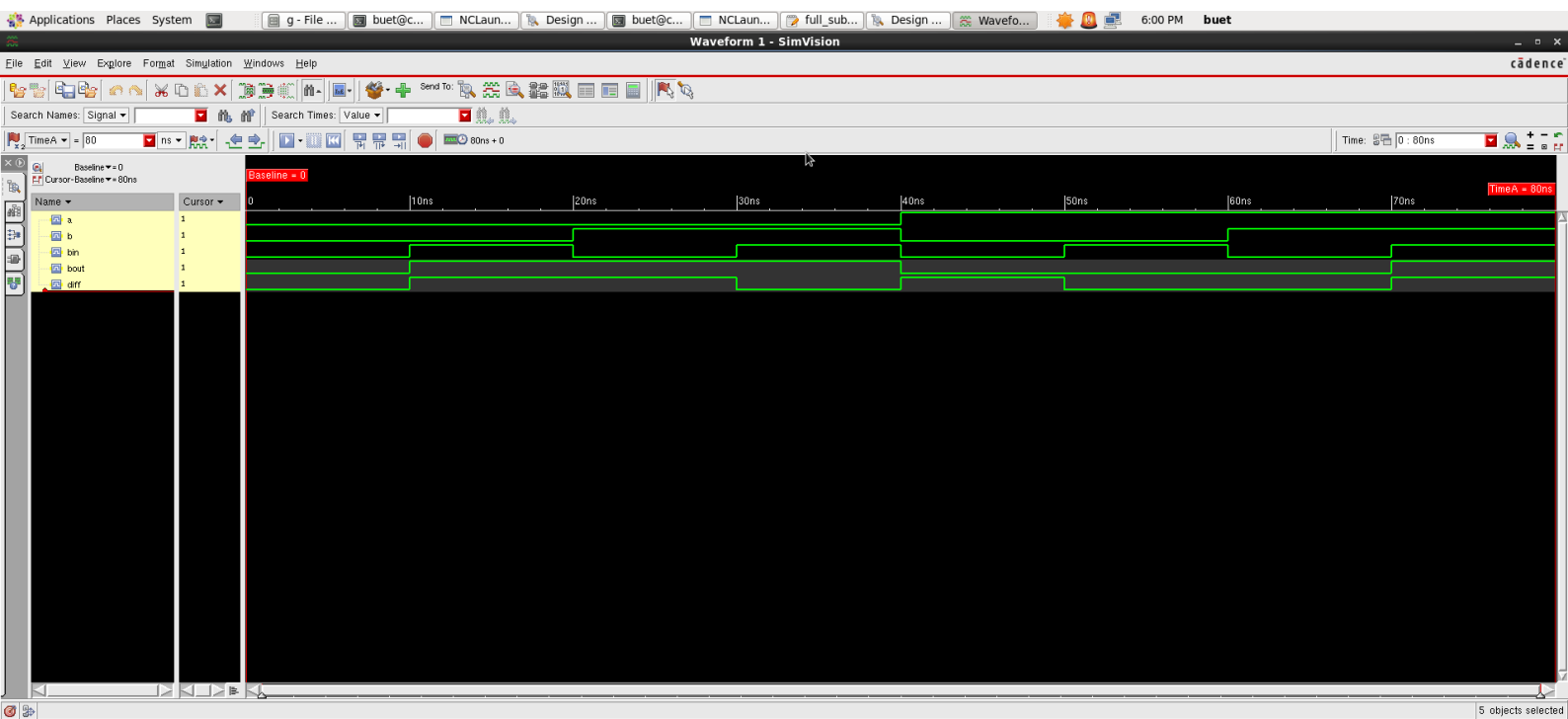
    initial
    begin

        $monitor("Time=%t a=%b b=%b bin=%b diff=%b bout=%b",$time,a,b,bin,diff,bout);

    end
    initial
    begin

        #0; {a,b,bin}=3'd0;
        #10; {a,b,bin}=3'd1;
        #10; {a,b,bin}=3'd2;
        #10; {a,b,bin}=3'd3;
        #10; {a,b,bin}=3'd4;
        #10; {a,b,bin}=3'd5;
        #10; {a,b,bin}=3'd6;
        #10; {a,b,bin}=3'd7;
        #10;
        $finish;

    end
endmodule
```



Applications Places System d - File Brow... buet@caden

File Edit View Search Tools Documents Help

Open Save Undo

full\_subtractor\_d.v

```
module full_subtractor_d(a,b,bin,diff,bout);  
  
    input a,b,bin;  
    output diff,bout;  
  
    assign {bout,diff}={(~a&b)|(b&bin)|(bin&~a),a^b^bin};  
endmodule
```

```
ncsim>
ncsim> database -open waves -into waves.shm -default
Created default SHM database waves
ncsim> probe -create -shm full_subtractor_d_tb.a full_subtractor_d_tb.b full_subtractor_d_tb.bin full_subtractor_d_tb.bout full_subtractor_d_tb.diff
Created probe 1
ncsim> run
Time=          0 a=0 b=0 bin=0 diff=0 bout=0
Time=         10 a=0 b=0 bin=1 diff=1 bout=1
Time=         20 a=0 b=1 bin=0 diff=1 bout=1
Time=         30 a=0 b=1 bin=1 diff=0 bout=1
Time=         40 a=1 b=0 bin=0 diff=1 bout=0
Time=         50 a=1 b=0 bin=1 diff=0 bout=0
Time=         60 a=1 b=1 bin=0 diff=0 bout=0
Time=         70 a=1 b=1 bin=1 diff=1 bout=1
Simulation complete via $finish(1) at time 80 NS + 0
./full_subtractor_d_tb.v:26      $finish;
ncsim>
```

full\_subtractor\_d\_tb.v

```
module full_subtractor_d_tb();

    reg a,b,bin;
    wire diff,bout;

    full_subtractor_d FS1(a,b,bin,diff,bout);

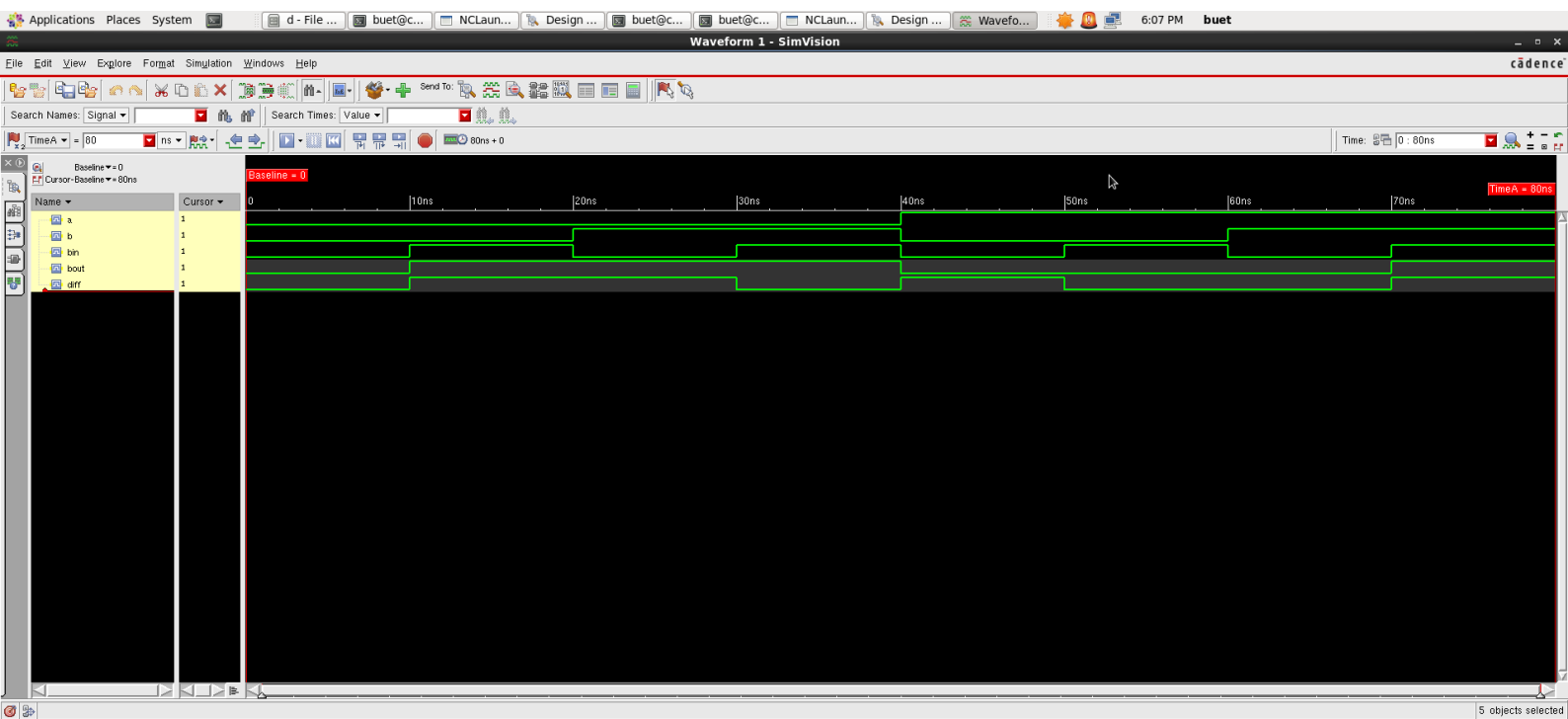
    initial
    begin

        $monitor("Time=%t a=%b b=%b bin=%b diff=%b bout=%b",$time,a,b,bin,diff,bout);

    end
    initial
    begin

        #0; {a,b,bin}=3'd0;
        #10; {a,b,bin}=3'd1;
        #10; {a,b,bin}=3'd2;
        #10; {a,b,bin}=3'd3;
        #10; {a,b,bin}=3'd4;
        #10; {a,b,bin}=3'd5;
        #10; {a,b,bin}=3'd6;
        #10; {a,b,bin}=3'd7;
        #10;
        $finish;

    end
endmodule
```







Applications

Places

System



b - File Brow...



File Edit View Search Tools Documents Help



Open ▾



Save



Undo



full\_subtractor\_b.v ✕

```
module full_subtractor_b(a,b,bin,diff,bout);
```

```
    input a,b,bin;
```

```
    output reg diff,bout;
```

```
    always @(a,b,bin)
```

```
    case ({a,b,bin})
```

```
        3'd0: {bout,diff}=2'd0;
```

```
        3'd1: {bout,diff}=2'd3;
```

```
        3'd2: {bout,diff}=2'd3;
```

```
        3'd3: {bout,diff}=2'd2;
```

```
        3'd4: {bout,diff}=2'd1;
```

```
        3'd5: {bout,diff}=2'd0;
```

```
        3'd6: {bout,diff}=2'd0;
```

```
        3'd7: {bout,diff}=2'd3;
```

```
    default: {bout,diff}=2'dx;
```

```
    endcase
```

```
endmodule
```

```
ncsim>
ncsim> database -open waves -into waves.shm -default
Created default SHM database waves
ncsim> probe -create -shm full_subtractor_b_tb.a full_subtractor_b_tb.b full_subtractor_b_tb.bin full_subtractor_b_tb.bout full_subtractor_b_tb.diff
Created probe 1
ncsim> run
Time=      0 a=0 b=0 bin=0 diff=0 bout=0
Time=     10 a=0 b=0 bin=1 diff=1 bout=1
Time=     20 a=0 b=1 bin=0 diff=1 bout=1
Time=     30 a=0 b=1 bin=1 diff=0 bout=1
Time=     40 a=1 b=0 bin=0 diff=1 bout=0
Time=     50 a=1 b=0 bin=1 diff=0 bout=0
Time=     60 a=1 b=1 bin=0 diff=0 bout=0
Time=     70 a=1 b=1 bin=1 diff=1 bout=1
Simulation complete via $finish(1) at time 80 NS + 0
./full_subtractor_b_tb.v:26      $finish;
ncsim>
```

```
module full_subtractor_b_tb();

    reg a,b,bin;
    wire diff,bout;

    full_subtractor_b FS1(a,b,bin,diff,bout);

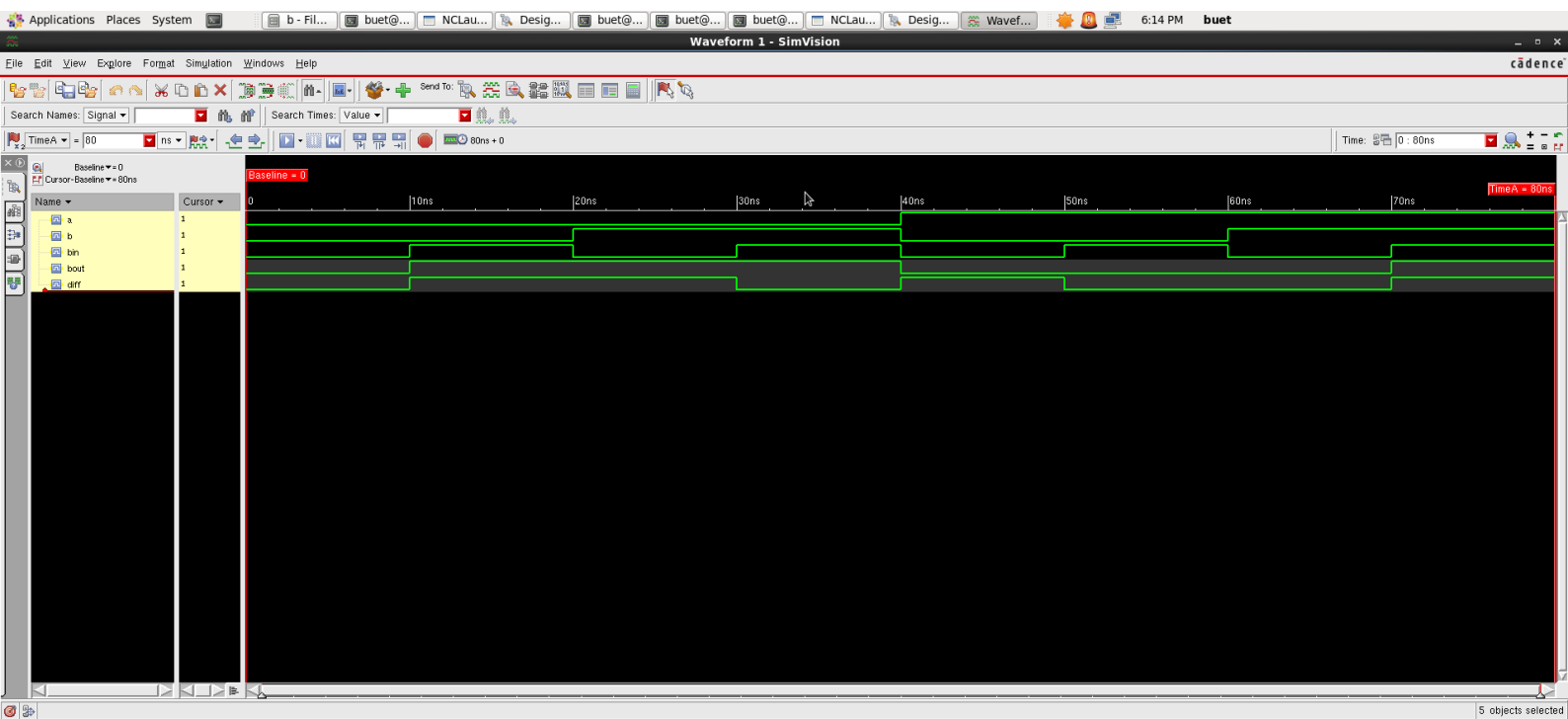
    initial
    begin

        $monitor("Time=%t a=%b b=%b bin=%b diff=%b bout=%b",$time,a,b,bin,diff,bout);

    end
    initial
    begin

        #0; {a,b,bin}=3'd0;
        #10; {a,b,bin}=3'd1;
        #10; {a,b,bin}=3'd2;
        #10; {a,b,bin}=3'd3;
        #10; {a,b,bin}=3'd4;
        #10; {a,b,bin}=3'd5;
        #10; {a,b,bin}=3'd6;
        #10; {a,b,bin}=3'd7;
        #10;
        $finish;

    end
endmodule
```





Applications

Places

System



[C



File Edit View Search Tools Documents Help



Open ▾



Save



Undo



half\_adder\_g.v ✕

```
module half_adder_g(a,b,sum,cout);  
  
    input a,b;  
    output sum,cout;  
  
    xor X1(sum,a,b);  
    and A1(cout,a,b);  
endmodule
```

Applications Places System [Co... g - ... [bu... bue... Des... [bu...

File Edit View Simulation Windows Help

Text Search: [ ] [ ] [ ]

60ns + 0

```
ncsim>
ncsim> database -open waves -into waves.shm -default
Created default SHM database waves
ncsim> probe -create -shm half_adder_tb_g.a half_adder_tb_g.b half_adder_tb_g.cout half_adder_tb_g.sum
Created probe 1
ncsim> run
Time=          0 a=0 b=0 sum=0 cout=0
Time=         10 a=0 b=1 sum=1 cout=0
Time=         20 a=1 b=0 sum=1 cout=0
Time=         30 a=1 b=1 sum=0 cout=1
Simulation complete via $finish(1) at time 60 NS + 0
./half_adder_tb_g.v:16 $finish;
ncsim>
```

half\_adder\_tb\_g.v

```
module half_adder_tb_g();

    reg a,b;
    wire sum,cout;

    half_adder_g HA1(a,b,sum,cout);

    initial
    begin

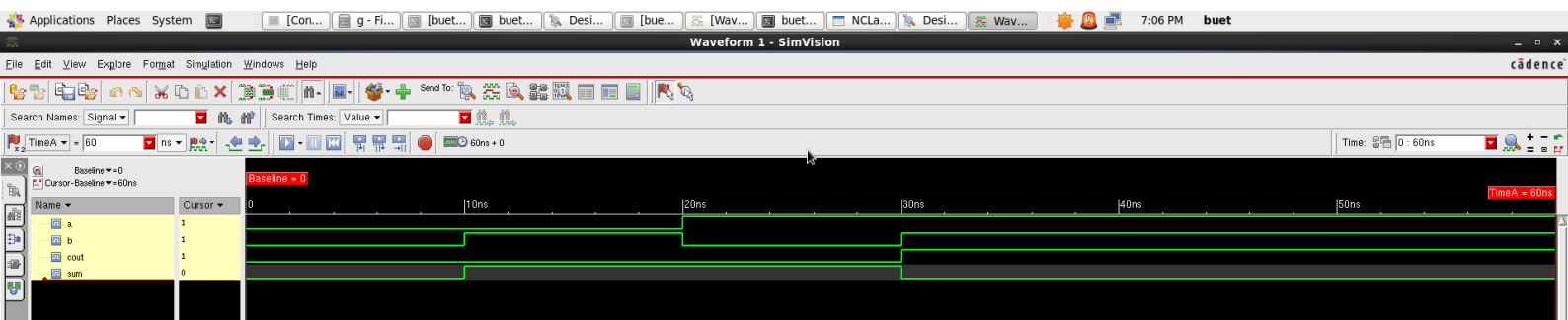
        #0; {a,b}= 2'd0;
        #10; {a,b}= 2'd1;
        #10; {a,b}= 2'd2;
        #10; {a,b}= 2'd3;
        #30;
        $finish;

    end

    initial
    begin

        $monitor("Time=%t a=%b b=%b sum=%b cout=%b",$time,a,b,sum,cout);

    end
endmodule
```







Applications

Places

System



ha - File...



File Edit View Search Tools Documents Help



Open



Save



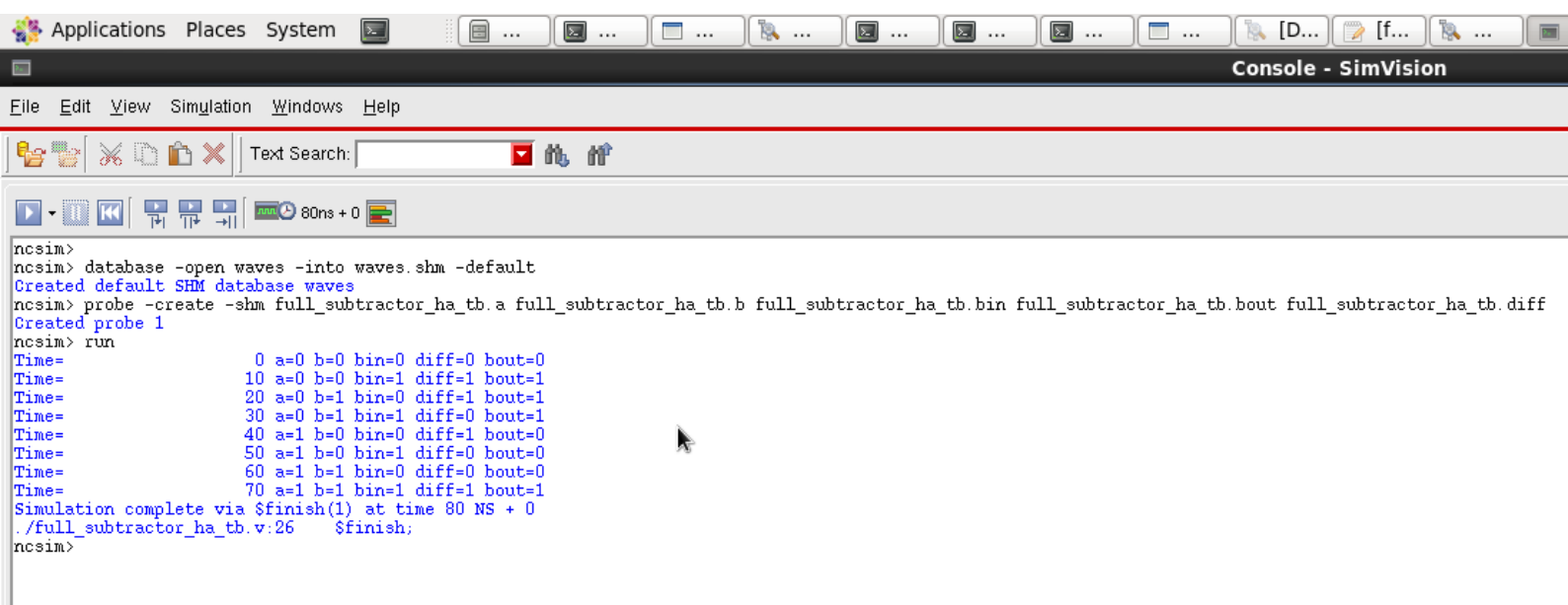
Undo



full\_subtractor\_ha.v



```
module full_subtractor_ha(a,b,bin,diff,bout);  
  
    input a,b,bin;  
    output diff,bout;  
    wire [4:0]w;  
    not N1(w[0],a);  
    half_adder_g HA1(w[0],b,w[1],w[2]);  
    half_adder_g HA2(w[1],bin,w[3],w[4]);  
    not N2(diff,w[3]);  
    or O1(bout,w[2],w[4]);  
endmodule
```



```
module full_subtractor_ha_tb();

    reg a,b,bin;
    wire diff,bout;

    full_subtractor_ha FS1(a,b,bin,diff,bout);

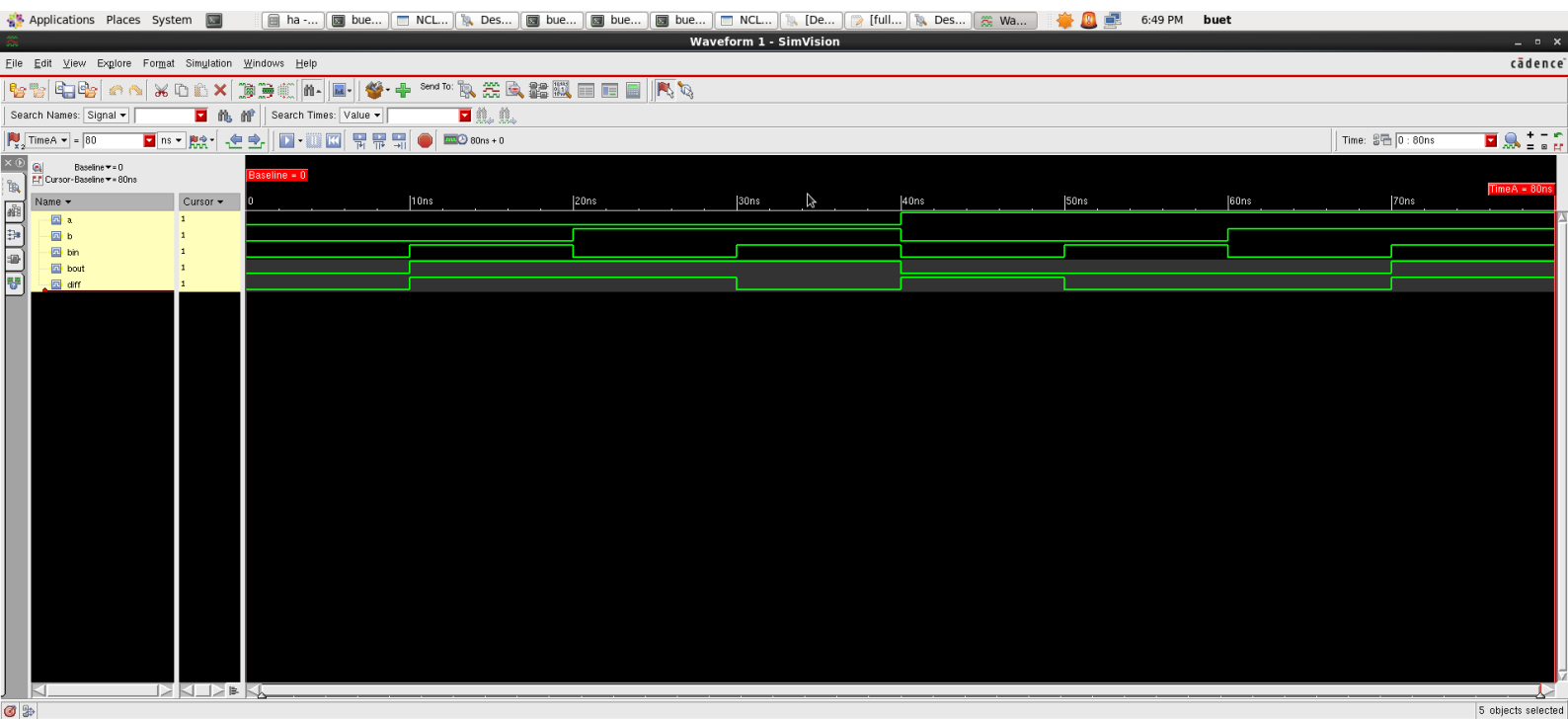
    initial
    begin

        $monitor("Time=%t a=%b b=%b bin=%b diff=%b bout=%b",$time,a,b,bin,diff,bout);

    end
    initial
    begin

        #0; {a,b,bin}=3'd0;
        #10; {a,b,bin}=3'd1;
        #10; {a,b,bin}=3'd2;
        #10; {a,b,bin}=3'd3;
        #10; {a,b,bin}=3'd4;
        #10; {a,b,bin}=3'd5;
        #10; {a,b,bin}=3'd6;
        #10; {a,b,bin}=3'd7;
        #10;
        $finish;

    end
endmodule
```





Applications Places System



[bu



File Edit View Search Tools Documents Help



Open ▾



Save



Undo



half\_subtractor\_g.v ✕

```
module half_subtractor_g(a,b,diff,bout);
```

```
    input a,b;
```

```
    output diff,bout;
```

```
    wire w;
```

```
    xor X1(diff,a,b);
```

```
    not N1(w,a);
```

```
    and A1(bout,w,b);
```

```
endmodule
```

Applications Places System [bu et... [Desig... [bu et... [bu et... g - Fil... bu et@... Console

File Edit View Simulation Windows Help

Text Search: [ ] [ ] [ ]

60ns + 0

```
ncsim>
ncsim> database -open waves -into waves.shm -default
Created default SHM database waves
ncsim> probe -create -shm half_subtractor_tb_g.a half_subtractor_tb_g.b half_subtractor_tb_g.bout half_subtractor_tb_g.diff
Created probe 1
ncsim> run
Time=          0 a=0 b=0 diff=0 bout=0
Time=         10 a=0 b=1 diff=1 bout=1
Time=         20 a=1 b=0 diff=1 bout=0
Time=         30 a=1 b=1 diff=0 bout=0
Simulation complete via $finish(1) at time 60 NS + 0
./half_subtractor_g_tb.v:16    $finish;
ncsim>
```

half\_subtractor\_g\_tb.v

```
module half_subtractor_tb_g();

    reg a,b;
    wire diff,bout;

    half_subtractor_g HS1(a,b,diff,bout);

    initial
    begin

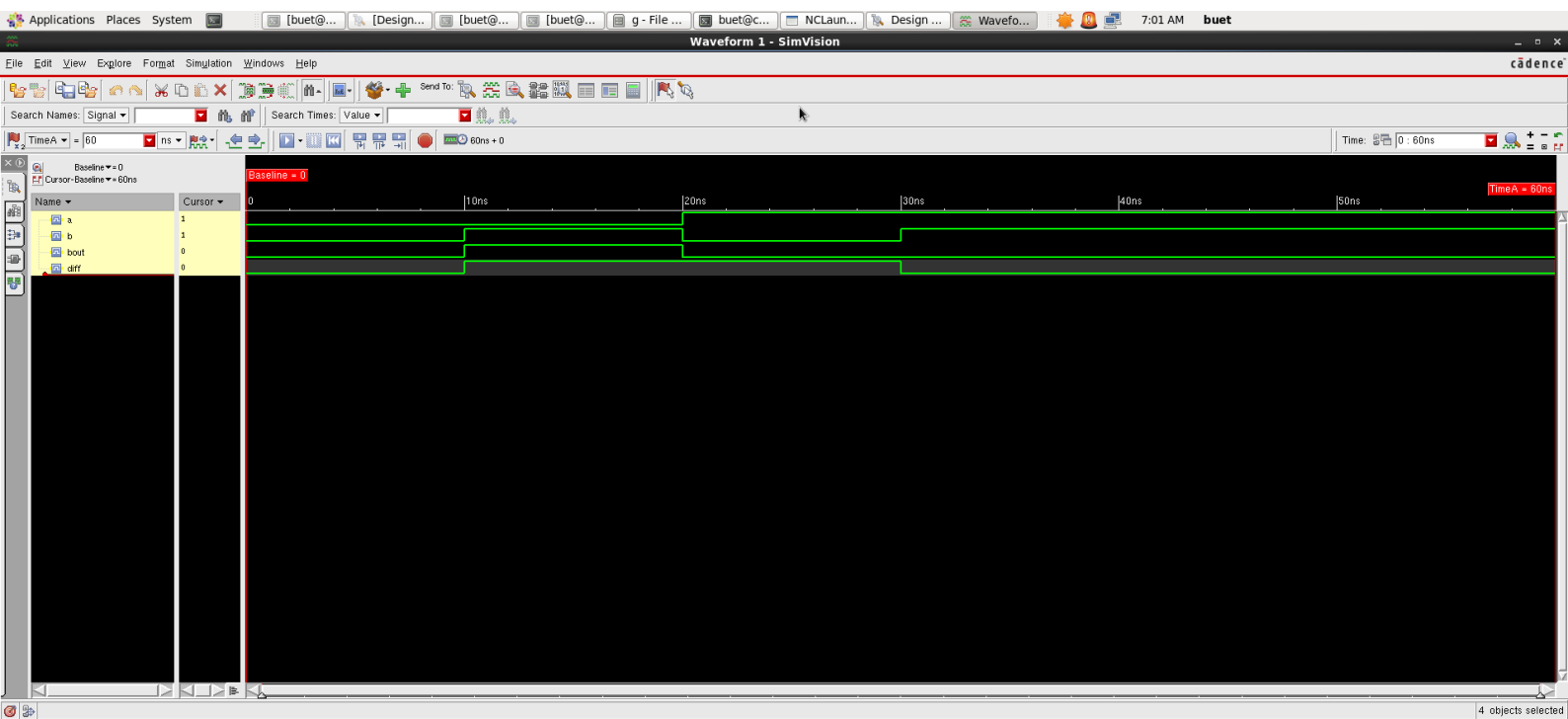
        #0; {a,b}= 2'd0;
        #10; {a,b}= 2'd1;
        #10; {a,b}= 2'd2;
        #10; {a,b}= 2'd3;
        #30;
        $finish;

    end

    initial
    begin

        $monitor("Time=%t a=%b b=%b diff=%b bout=%b",$time,a,b,diff,bout);

    end
endmodule
```



4 objects selected





File Edit View Search Tools Documents Help



Open ▾



Save



Undo



full\_subtractor\_hs.v ✕

```
module full_subtractor_hs(a,b,bin,diff,bout);  
  
    input a,b,bin;  
    output diff,bout;  
    wire [2:0]w;  
  
    half_subtractor_g HS1(a,b,w[0],w[1]);  
    half_subtractor_g HS2(w[0],bin,diff,w[2]);  
    or O1(bout,w[1],w[2]);  
endmodule
```

Applications Places System

hs - ... buet... NCLa... Desi... buet... buet... buet... NCL... Desi...

Console - SimVision

File Edit View Simulation Windows Help

Text Search:

80ns + 0

```
nccsim>
nccsim> database -open waves -into waves.shm -default
Created default SHM database waves
nccsim> probe -create -shm full_subtractor_hs_tb.a full_subtractor_hs_tb.b full_subtractor_hs_tb.bin full_subtractor_hs_tb.bout full_subtractor_hs_tb.diff
Created probe 1
nccsim> run
Time=          0 a=0 b=0 bin=0 diff=0 bout=0
Time=         10 a=0 b=0 bin=1 diff=1 bout=1
Time=         20 a=0 b=1 bin=0 diff=1 bout=1
Time=         30 a=0 b=1 bin=1 diff=0 bout=1
Time=         40 a=1 b=0 bin=0 diff=1 bout=0
Time=         50 a=1 b=0 bin=1 diff=0 bout=0
Time=         60 a=1 b=1 bin=0 diff=0 bout=0
Time=         70 a=1 b=1 bin=1 diff=1 bout=1
Simulation complete via $finish(1) at time 80 NS + 0
./full_subtractor_hs_tb.v:26    $finish;
nccsim>
```

```
module full_subtractor_hs_tb();

    reg a,b,bin;
    wire diff,bout;

    full_subtractor_hs FS1(a,b,bin,diff,bout);

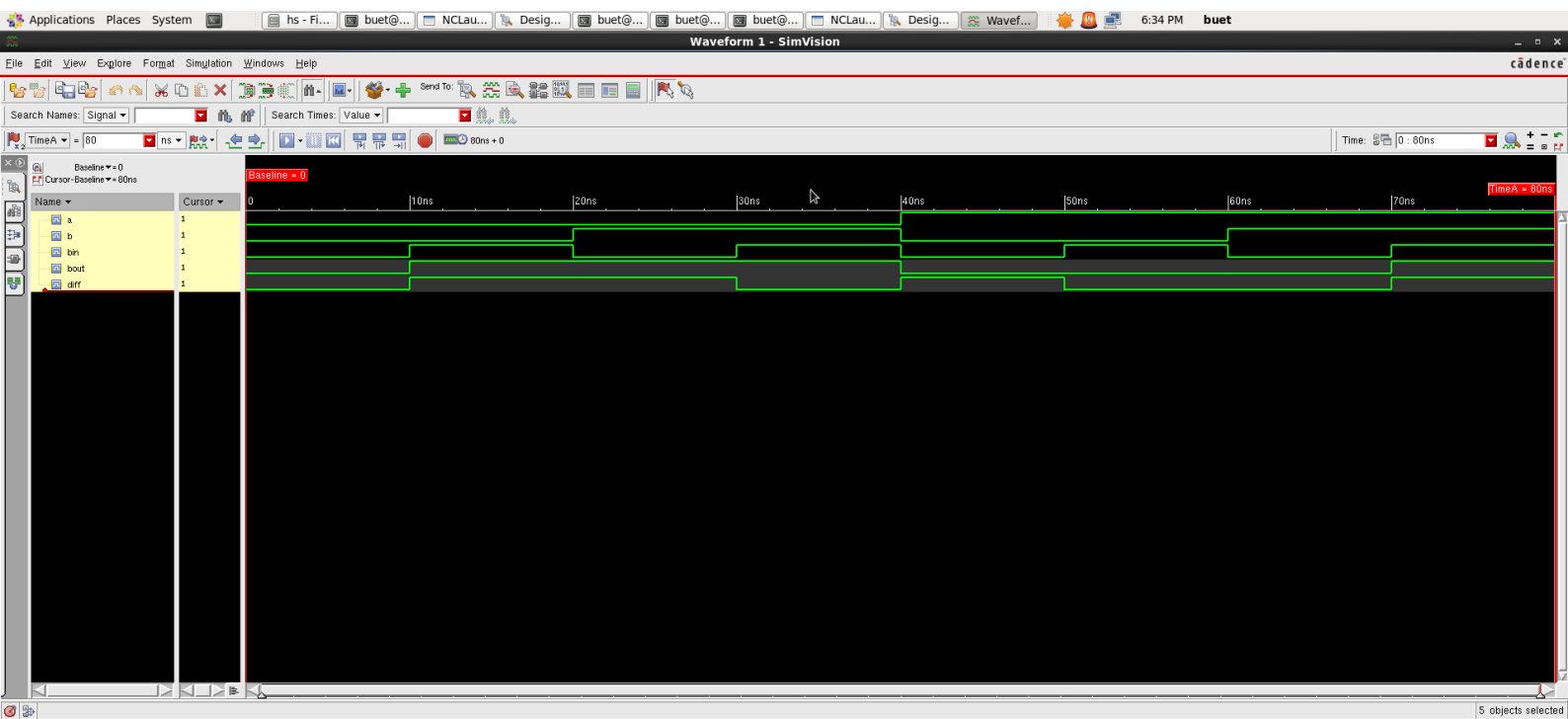
    initial
    begin

        $monitor("Time=%t a=%b b=%b bin=%b diff=%b bout=%b",$time,a,b,bin,diff,bout);

    end
    initial
    begin

        #0; {a,b,bin}=3'd0;
        #10; {a,b,bin}=3'd1;
        #10; {a,b,bin}=3'd2;
        #10; {a,b,bin}=3'd3;
        #10; {a,b,bin}=3'd4;
        #10; {a,b,bin}=3'd5;
        #10; {a,b,bin}=3'd6;
        #10; {a,b,bin}=3'd7;
        #10;
        $finish;

    end
endmodule
```





Applications Places System



na - Fi...



File Edit View Search Tools Documents Help



Open



Save



Undo



full\_subtractor\_na.v



```
module full_subtractor_na(a,b,bin,diff,bout);
```

```
    input a,b,bin;
```

```
    output diff,bout;
```

```
    wire [6:0]w;
```

```
    nand NA1(w[0],a,b);
```

```
    nand NA2(w[1],a,w[0]);
```

```
    nand NA3(w[2],b,w[0]);
```

```
    nand NA4(w[3],w[1],w[2]);
```

```
    nand NA5(w[4],w[3],bin);
```

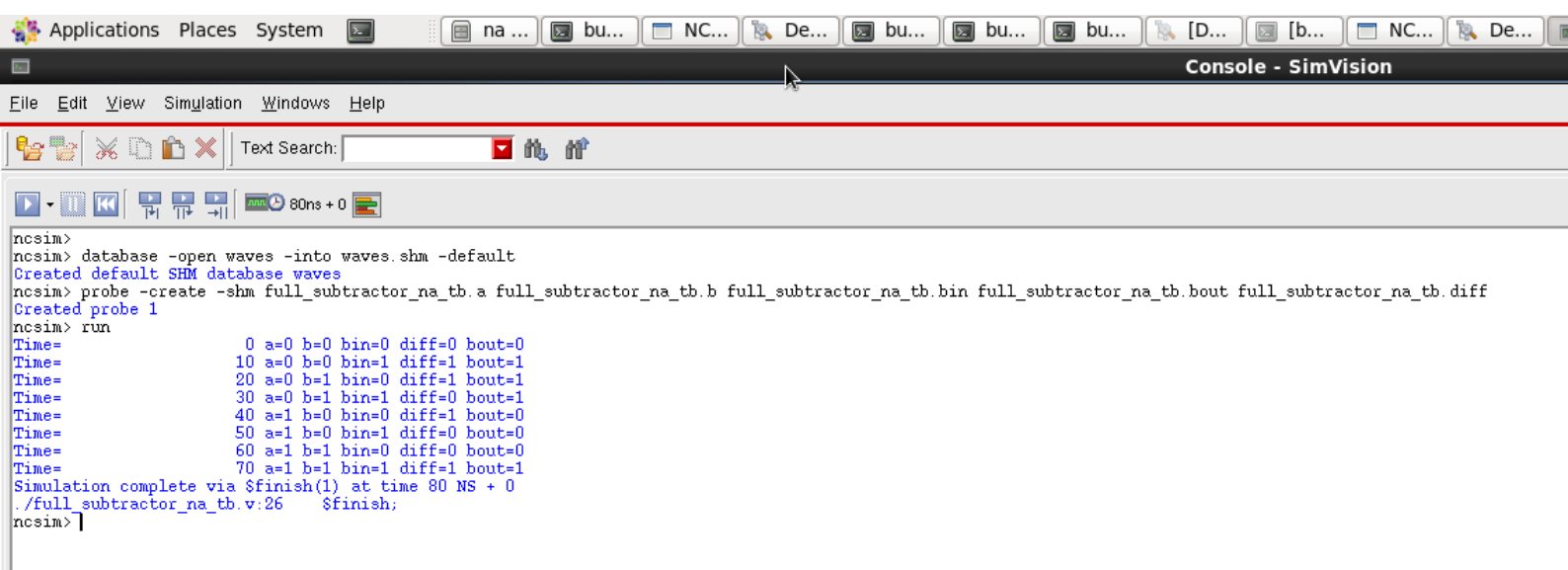
```
    nand NA6(w[5],w[3],w[4]);
```

```
    nand NA7(w[6],bin,w[4]);
```

```
    nand NA8(diff,w[5],w[6]);
```

```
    nand NA9(bout,w[2],w[6]);
```

```
endmodule
```



```
module full_subtractor_na_tb();

    reg a,b,bin;
    wire diff,bout;

    full_subtractor_na FS1(a,b,bin,diff,bout);

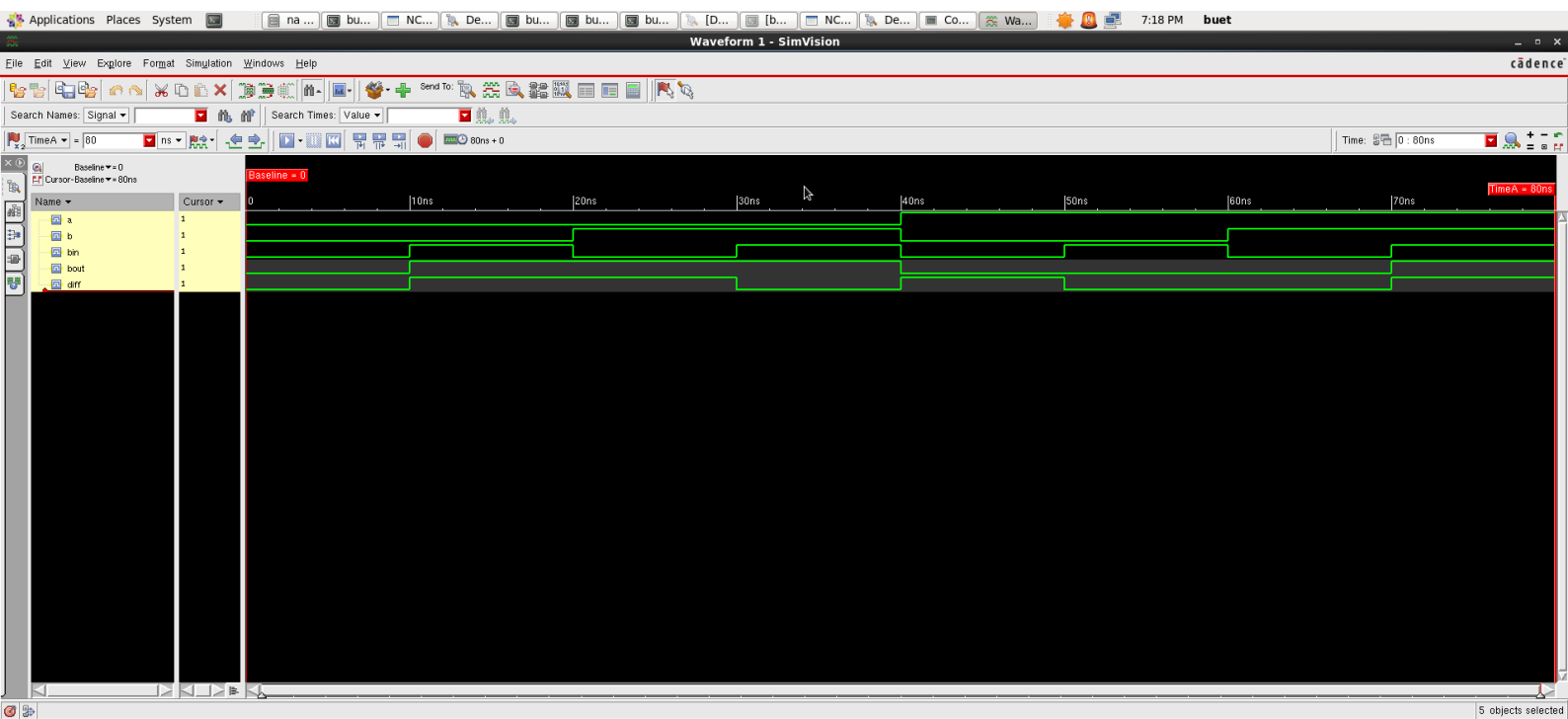
    initial
    begin

        $monitor("Time=%t a=%b b=%b bin=%b diff=%b bout=%b",$time,a,b,bin,diff,bout);

    end
    initial
    begin

        #0; {a,b,bin}=3'd0;
        #10; {a,b,bin}=3'd1;
        #10; {a,b,bin}=3'd2;
        #10; {a,b,bin}=3'd3;
        #10; {a,b,bin}=3'd4;
        #10; {a,b,bin}=3'd5;
        #10; {a,b,bin}=3'd6;
        #10; {a,b,bin}=3'd7;
        #10;
        $finish;

    end
endmodule
```







Applications Places System



no - ...



File Edit View Search Tools Documents Help



Open ▾



Save



Undo



full\_subtractor\_no.v ✕

```
module full_subtractor_no(a,b,bin,diff,bout);  
  
    input a,b,bin;  
    output diff,bout;  
    wire [6:0]w;  
  
    nor N01(w[0],a,b);  
    nor N02(w[1],a,w[0]);  
    nor N03(w[2],b,w[0]);  
    nor N04(w[3],w[1],w[2]);  
    nor N05(w[4],bin,w[3]);  
    nor N06(w[5],bin,w[4]);  
    nor N07(w[6],w[4],w[3]);  
    nor N08(diff,w[5],w[6]);  
    nor N09(bout,w[2],w[5]);  
  
endmodule
```



full\_subtractor\_no\_tb.v

```
module full_subtractor_no_tb();

    reg a,b,bin;
    wire diff,bout;

    full_subtractor_no FS1(a,b,bin,diff,bout);

    initial
    begin

        $monitor("Time=%t a=%b b=%b bin=%b diff=%b bout=%b",$time,a,b,bin,diff,bout);

    end
    initial
    begin

        #0; {a,b,bin}=3'd0;
        #10; {a,b,bin}=3'd1;
        #10; {a,b,bin}=3'd2;
        #10; {a,b,bin}=3'd3;
        #10; {a,b,bin}=3'd4;
        #10; {a,b,bin}=3'd5;
        #10; {a,b,bin}=3'd6;
        #10; {a,b,bin}=3'd7;
        #10;
        $finish;

    end
endmodule
```

