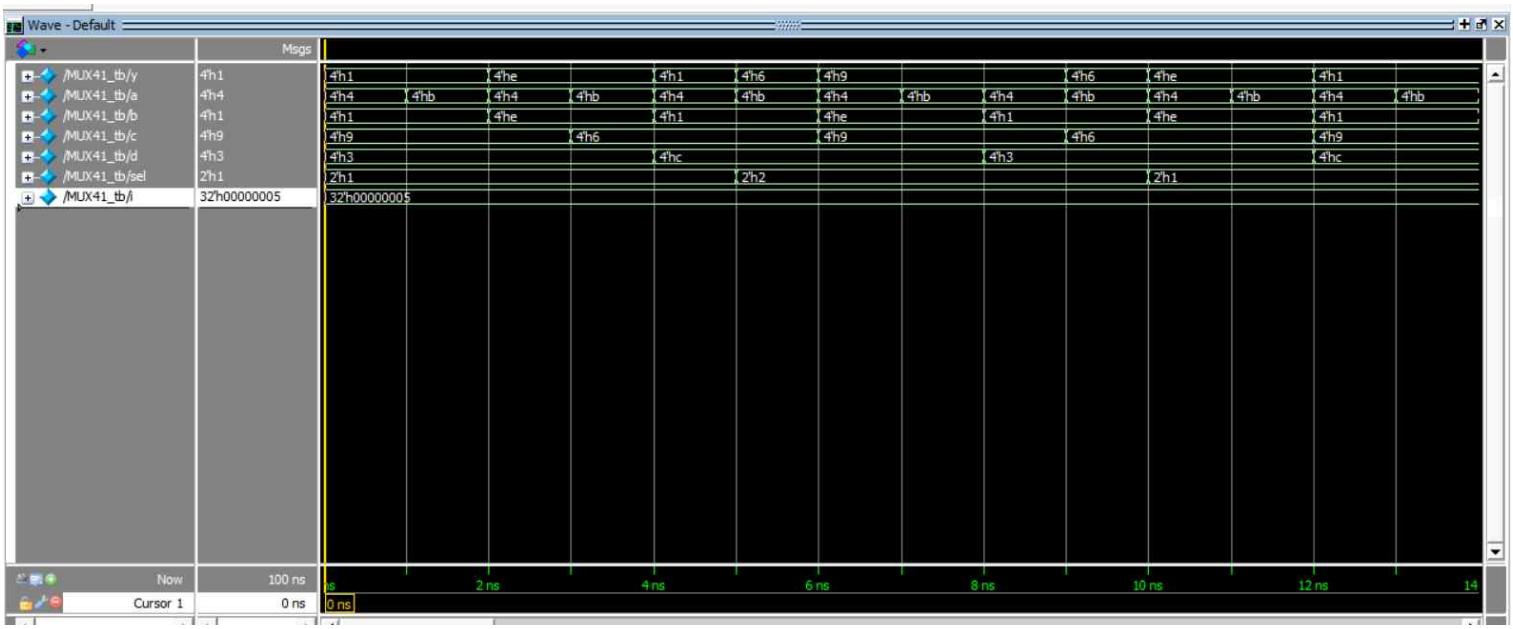
2015112138 Sejin Kwon



File Name : MUX41.v // be defined physically

```
module MUX41(i0,i1,i2,i3,sel,y);
        input [3:0] i0,i1,i2,i3; // 4bit 4 input
        input [1:0] sel; // 2bit sel
        output reg [3:0] y; // 4bit 1 output

        always @(*) begin //assign output value according to sel value
                case(sel) // by using case
                        2'b00: y=i0;
                        2'b01: y=i1;
                        2'b10: y=i2;
                        2'b11: y=i3;
                endcase
        end
endmodule
```

```
module MUX41_tb();
	wire [3:0] y; // 4bit output y
	reg [3:0] a,b,c,d; // 4bit 4 input a,b,c,d
	reg [1:0] sel; // 2bit sel
	integer i; // integer to increase sel value

	MUX41 u1(a,b,c,d,sel,y); // make a MUX instance.

	initial begin // initialize value
		a=$random; //initialize 4 input value by random
		b=$random;
		c=$random;
		d=$random;
		sel = 2'b00; //initialize sel
		for(i=0;i<5;i=i+1) // increase sel value by For loop
			sel = sel+1;
	end

	always // change 4 input and sel value periodically
		#1 a = ~a;
	always
		#2 b = ~b;
	always
		#3 c = ~c;
	always
		#4 d = ~d;
	always
		#5 sel = ~sel;
endmodule
```