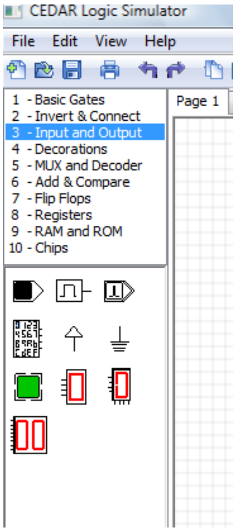
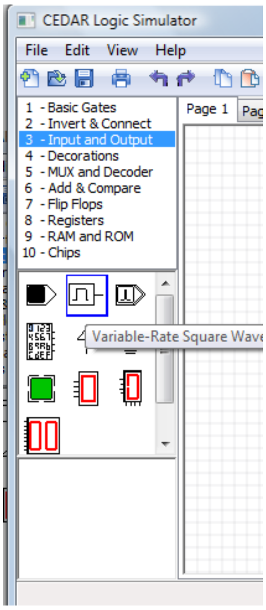
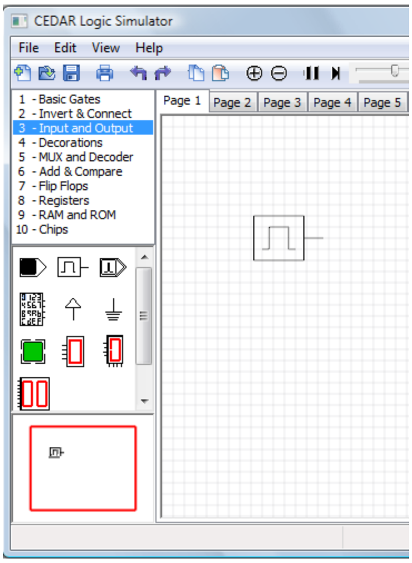
How to use To/From

1. Click to the “3 – Input and Output” to view the list of I/O.

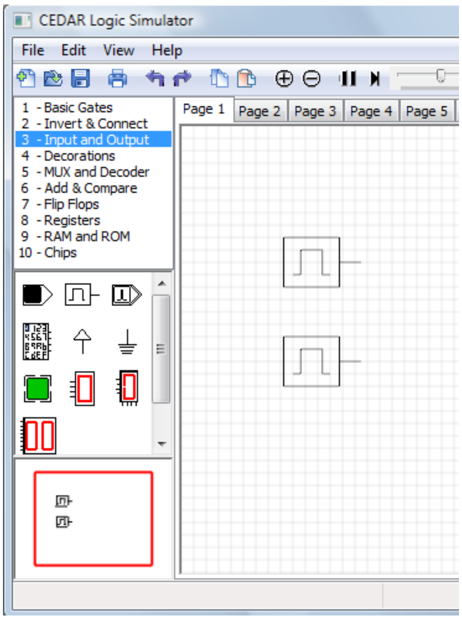


2. Hold the left mouse button down at the “Variable-Rate Square Wave” and drag the gate shape onto the gate canvas.

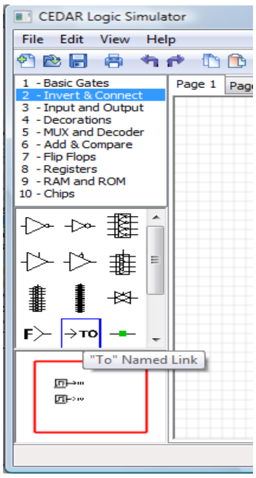




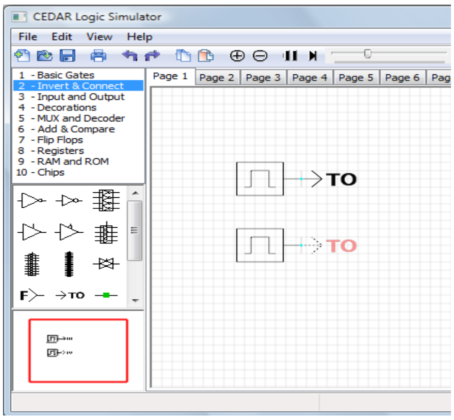
3. Drag another “Variable-Rate Square Wave” onto the canvas.



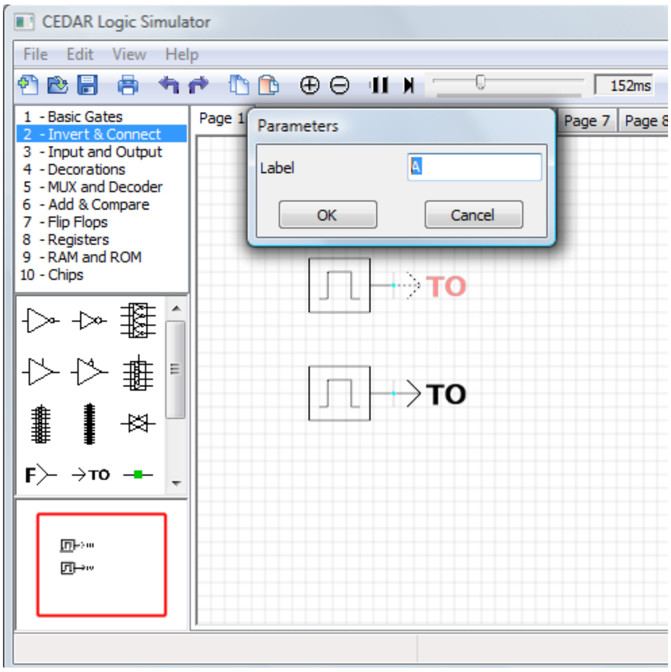
4. Drag “To Named Link” to the canvas



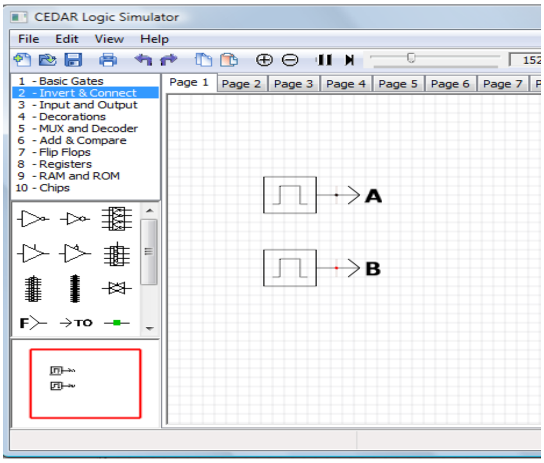
5. Connect both “To Named Link” with “Variable-Rate Square Wave”



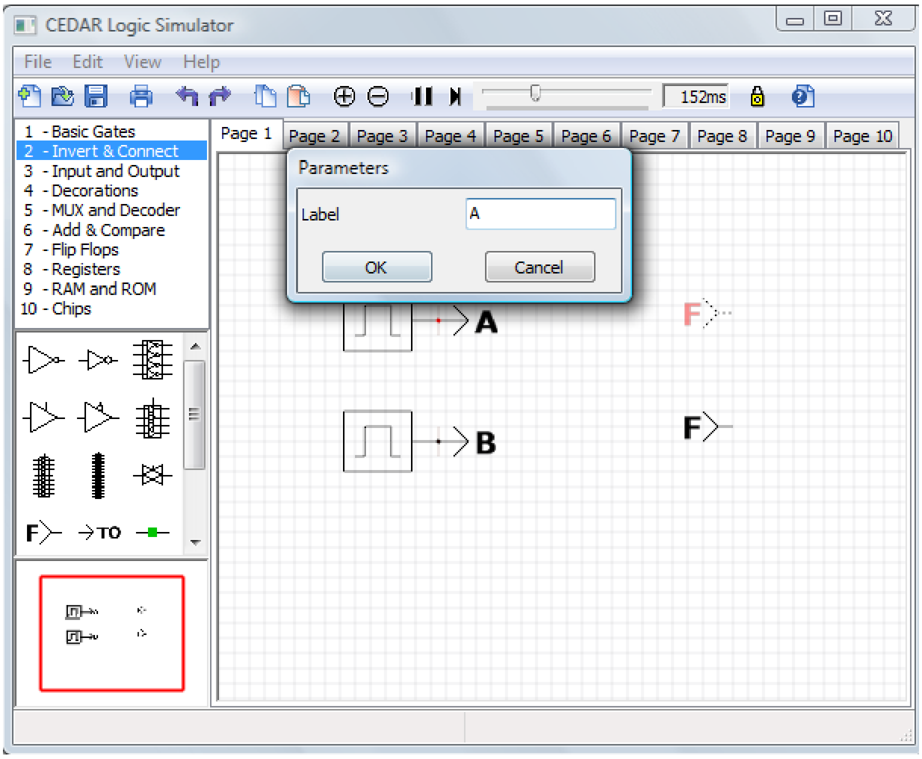
6. Double click the “To Named Link” and named it with any named (eg: A).



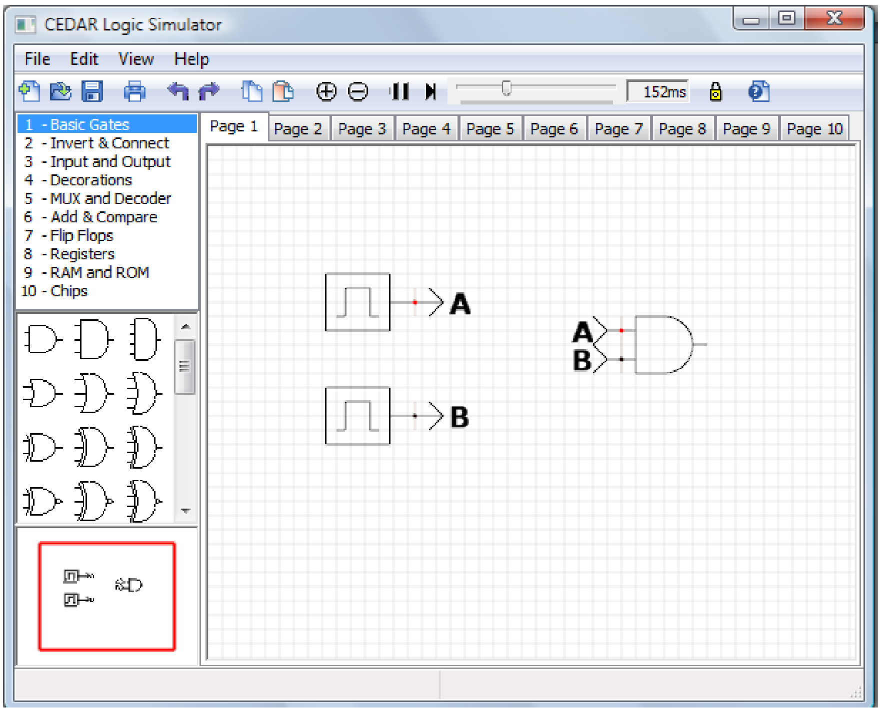
7. Named the other “To Named Link” with another name (eg:B).



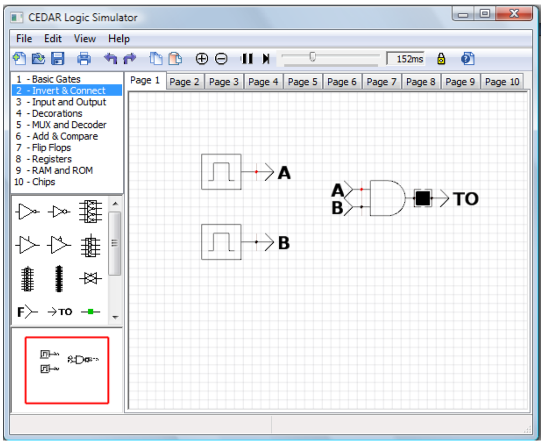
8. Drag “From Named Link” onto the canvas and named it with the same name with the named that you choose before.



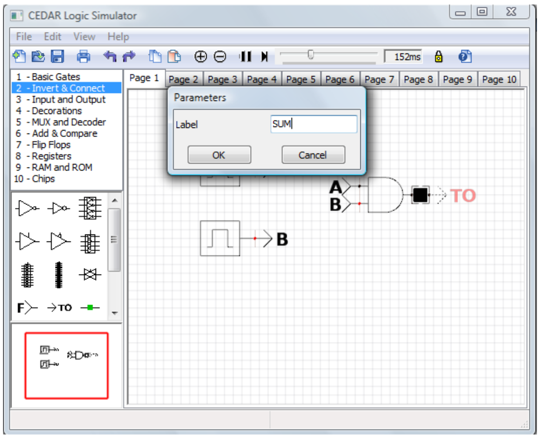
9. Drag the AND gate onto the canvas and connect it with the “From Named Link” that has been named by A and B



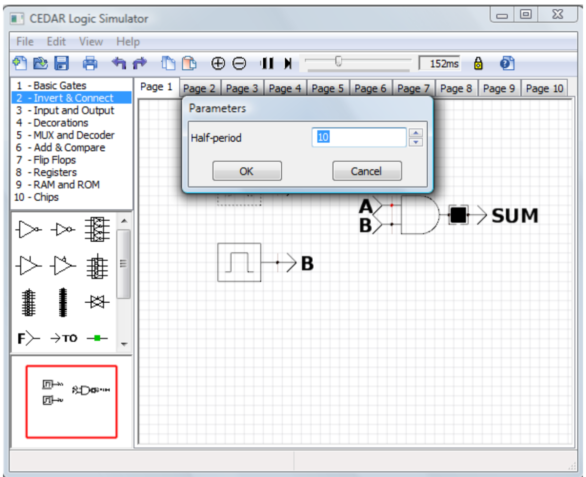
10. Drag the LED onto the canvas and connect it with the output of AND gates. Then, drag the "To Named Link" and connect it with the LED.



11. Named the "To Named Link" to any name(eg:sum)

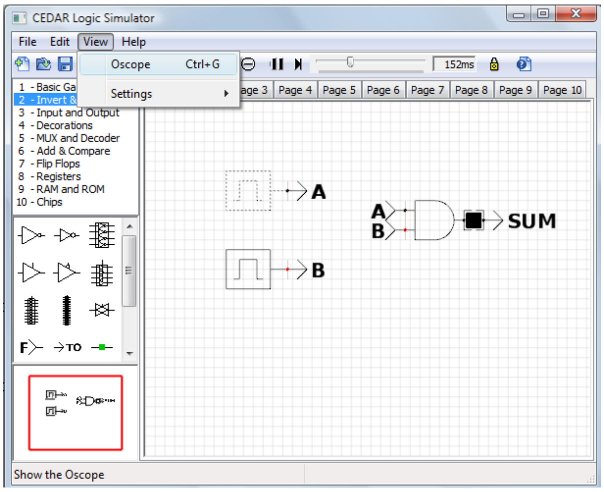


12. Double click on the A input clock so that a dialog box appears. Change the Half-period to 10 and press ok. Note that some gates have a property dialog box that can be accessed by double clicking on the gate. These dialog boxes contain gate parameters that can be set or changed

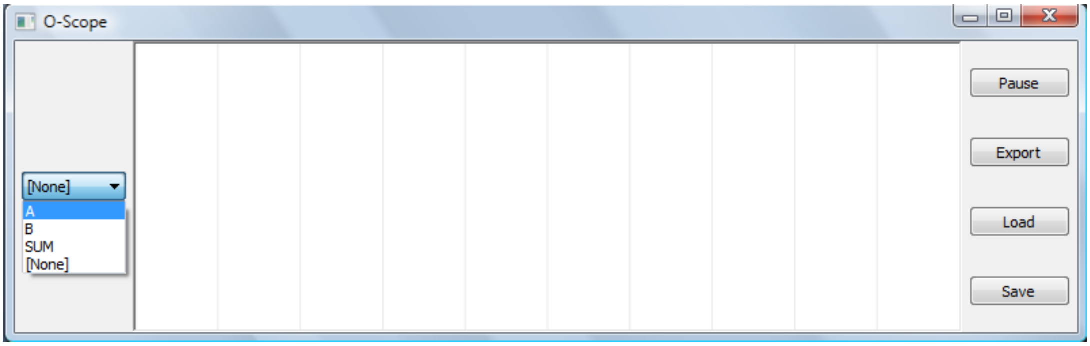


How to perform the Timing Diagram

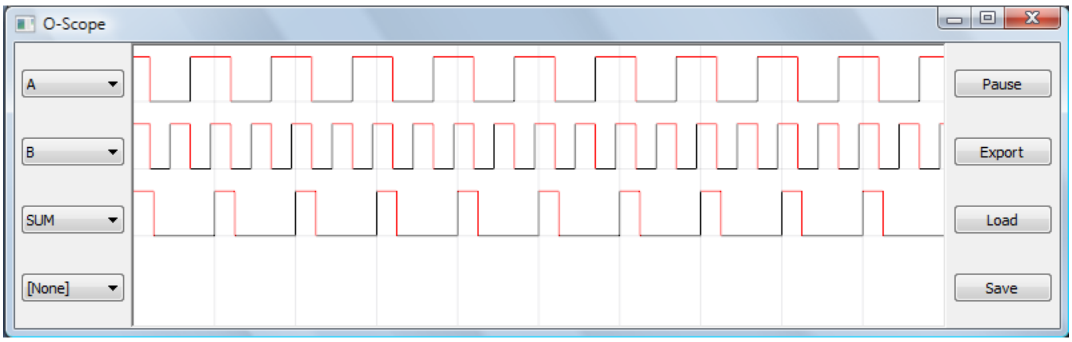
1. Select View -> Oscope from the toolbar.



2. Note that the Oscope dialog box appears. To add inputs for the Oscope to plot, simply select them from the drop down box and they will be added to the plot. Note that when an input is added, another input box appears allowing you to add more inputs to the Oscope. Only TO gates in a circuit can be plotted.



3. Add A, B, and sum to the Oscope plot so it looks as shown. Since the A input clock is twice as fast as the B input, the circuit's response to all possible inputs (0,1,2,3) can be observed.



Let's try

Postulate 2: Identity Element

- The element 0 is an identity element with respect to + operator:

  $$a + 0 = a$$

- The element 1 is an identity element with respect to . operator:

  $$a . 1 = a$$

***Using Cedar, prove that theorem is true.**

Postulate 3: Commutative

- Commutativity of the + operation

  $$a + b = b + a$$

- Commutativity of the . operation

  $$a . b = b . a$$

***Using Cedar, prove that theorem is true.**

Postulate 4: Associativity

- Associativity of the + operation

  $$a + (b + c) = (a + b) + c$$

- Associativity of the . operation

  $$a . (b . c) = (a . b) . c$$

***Using Cedar, prove that theorem is true.**

Postulate 5: Distributive

- Distributivity of the + operation

$$a + (b \cdot c) = (a + b) \cdot (a + c)$$

- Distributivity of the . operation

$$a \cdot (b + c) = (a \cdot b) + (a \cdot c)$$

***Using Cedar, prove that theorem is true.**

Postulate 6: Complement

For every *a* in K set, there exists a unique element called *a'* (complement of *a*) such that

$$a + a' = 1$$

and

$$a \cdot a' = 0$$

***Using Cedar, prove that theorem is true.**

Theorem 1: Idempotency

The output value does not change by its input multiplication whereby:

$$x + x = x$$

and based on duality property:

$$x \cdot x = x$$

***Using Cedar, prove that theorem is true.**

Theorem 2: Null Element

The output value is not affected by the changes in the input value, whereby:

$$x + 1 = 1$$

and based on duality property:

$$x \cdot 0 = 0$$

***Using Cedar, prove that theorem is true.**

Theorem 3: Involution

The double inverse output value of an input is equivalent to the input:

$(x')' = x$

***Using Cedar, prove that theorem is true.**

Theorem 4: Redundancy

This theorem is the result of the application of several other theorems that eliminates redundancy, whereby:

$a + (a' \,.\, b) = a + b$

and based on duality property:

$a \,.\, (a' + b) = a \,.\, b$

***Using Cedar, prove that theorem is true.**

Theorem 5: DeMorgan's Law

This theorem is based on DeMorgan's Law, whereby:

$\overline{(a + b)} = \overline{a} \,.\, \overline{b}$

and based on duality property:

$\overline{(a \,.\, b)} = \overline{a} + \overline{b}$

***Using Cedar, prove that theorem is true.**

Theorem 6: Absorption

This theorem is the result of the application of several other theorems that neglects a certain input variable, whereby:

$a + (a \,.\, b) = a$

and based on duality property:

$$a \ . \ (a + b) = a$$

***Using Cedar, prove that theorem is true.**