# Hello Digital World

This test bench illustrates how to use the "Control Panel" and the "Watch Window" with the virtual board.

Description

As shown below, the "Control Panel" communicates using the API with the simulator (RVM). With the "Control Panel", you can send events to control the counter and observe the output value. The example also shows how to use the watch windows for debugging.
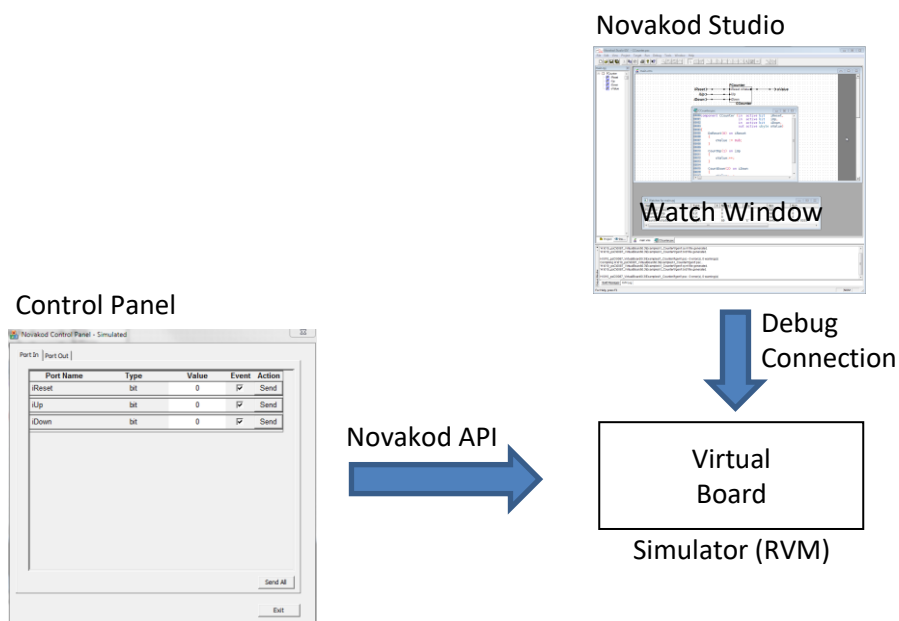
The psC program

The psC program consists of a single component, an up/down counter. The counter operation is controlled by sending an event on one of the inputs.
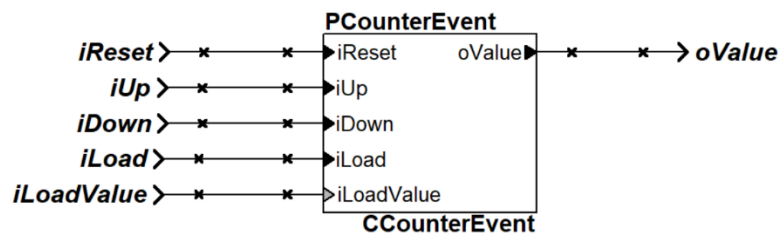

1) Double-click on "Counter.rpj" to start Novakod Studio.
2) Double-click on the "CCounterEvent" component to view the counter code.

Compiling and running the application

You will now compile the program, start execution and use the control panel to test it.

3) Open the Target "Simulation" properties and verify that it is the "Novakod Virtual Board" target. Also notice that the API Options "Automatically Launch Control Panel" is checked.
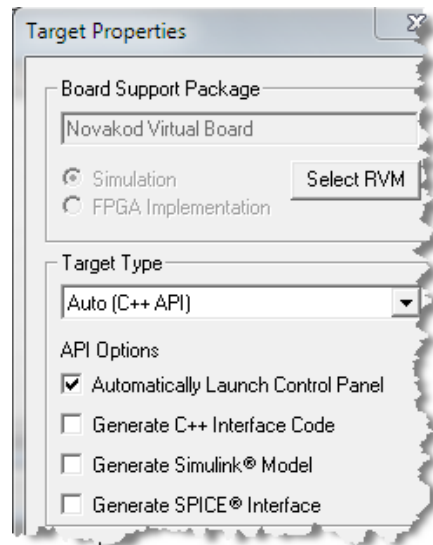
4) Now select the menu Run→Start to begin simulation. Click OK in the build confirmation dialog. The "Control Panel" should appear.
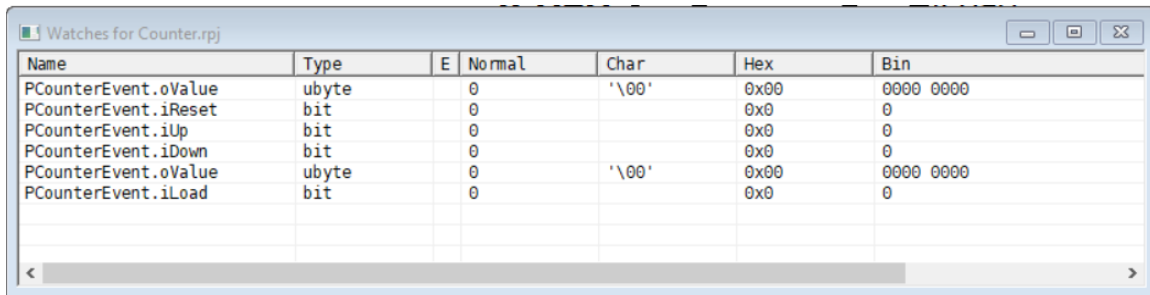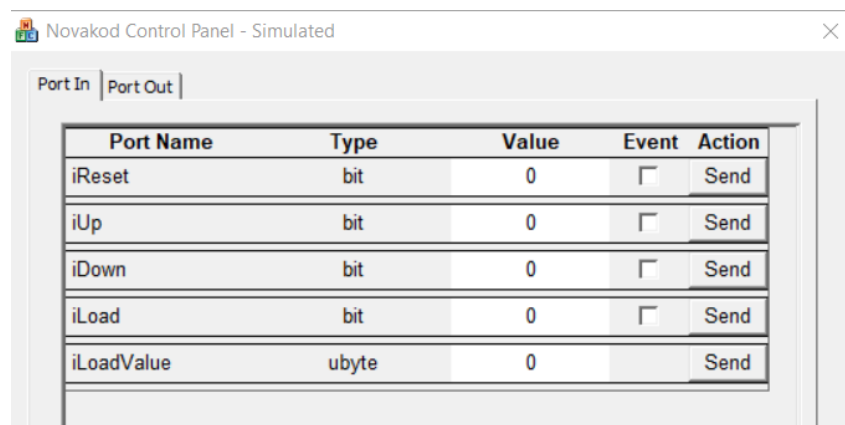

5) Using the control panel, check all event boxes and click "Send" for the desired operation to send the event.
6) Select the "Port Out" tab to verify the result on the "oValue" port.
7) Try all operations, click multiple times and observe the result.
8) Write a value for "iLoadValue" click the Send, then the Send for "iLoad"

Using the watch windows with the control panel

The watch window allows you to observe the values and the events as they are generated during simulation. It displays the values into four formats: Normal, Character, Hexadecimal and Binary. You can use the watch window and the control panel.

1) In the "Inspect" tab, click the plus sign to open the port list for PCounterEvent.
2) For each port, right-click and select "Add to watches" to insert the port in the watch window. You should see:

Name	Type	E	Normal	Char	Hex	Bin
PCounterEvent.oValue	ubyte		0	'\00'	0x00	0000 0000
PCounterEvent.iReset	bit		0		0x0	0
PCounterEvent.iUp	bit		0		0x0	0
PCounterEvent.iDown	bit		0		0x0	0
PCounterEvent.oValue	ubyte		0	'\00'	0x00	0000 0000
PCounterEvent.iLoad	bit		0		0x0	0

Watches for Counter.rpj

3) Now keep using the "Control Panel" to send events and observe the results in the watch windows. You will not see the events, since their duration is only one step. You can set the inputs to '1' to see a change. This is not necessary since the event triggers the operation.