Remote Triggered FPGA based Automation System

User Guide

Usage Scenario

- User will access the website of “Remote triggered FPGA based automation system” (http://59.181.142.81/fpga/automation.php)

Fig. 2.1 – Webpage of “Remote triggered FPGA based automation system”

- The user will upload his design by clicking on “Upload Verilog File”

Fig. 2.2 – Upload Design file (.v)

- After uploading the design file, the system checks for 1-bit input ports and lists options for the user to select the clock pin.

Fig. 2.3 – Select the appropriate clock pin and click on "Set clock pin" button

- The user has to give appropriate test vector input for the corresponding clock.
- User can provide the input for maximum 256 clock cycles.

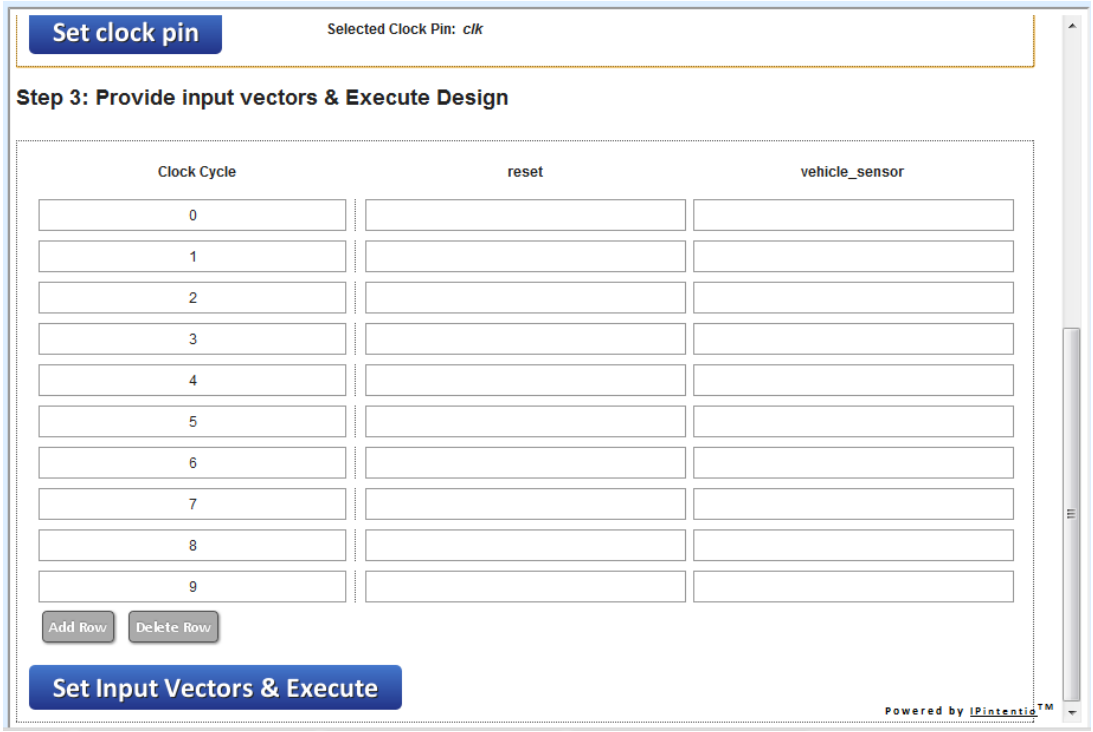

Fig. 2.4 – Step appearing after pressing "Set clock pin"

- The user may opt out from giving an input if the input is just repeating for some number of clock cycles where the system will take the value as the value of previous clock cycle but user will have to give the input where the input is changing.
- User can add and delete rows, if required, and can extend upto maximum a total of 256 rows.

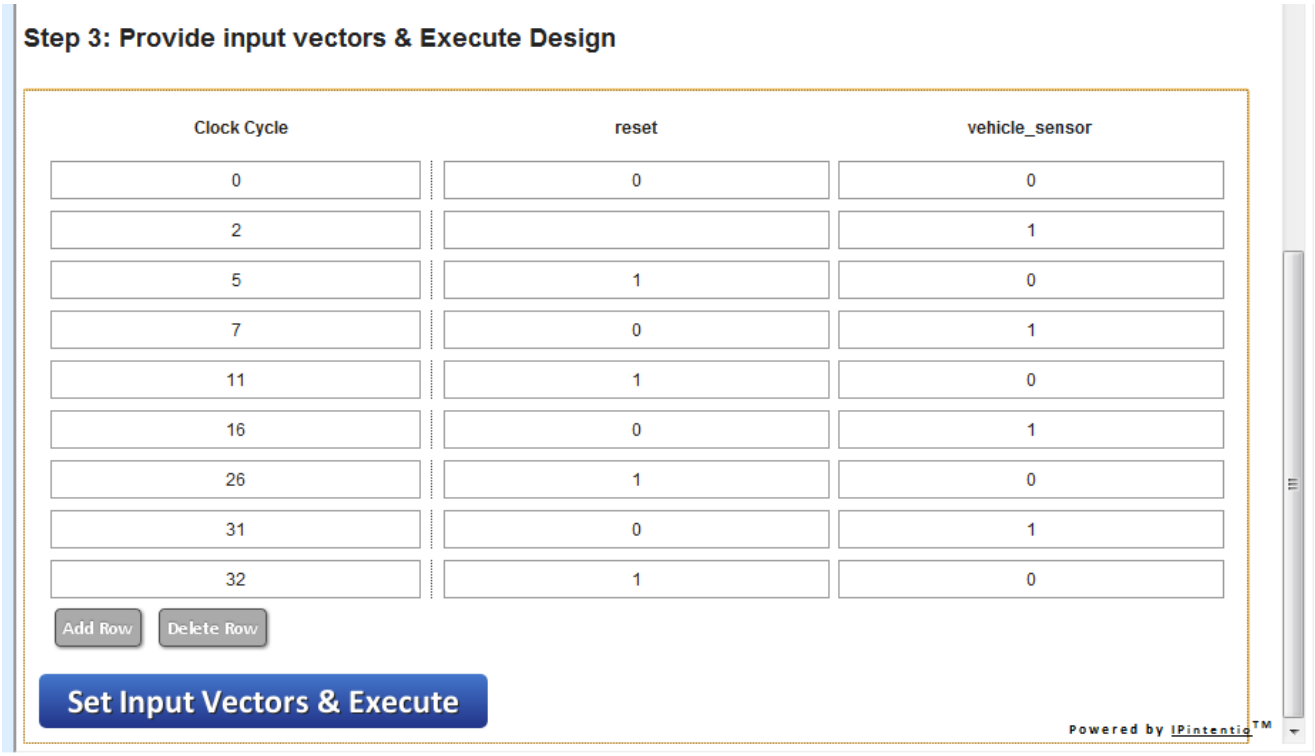

Fig. 2.5 – Input the appropriate test vectors by giving appropriate value of clock cycle and press “Set Input Vectors & Execute” button

- These inputs along with the clock pin are combined together to form a 16-bit where the rest of the bits are zeros.

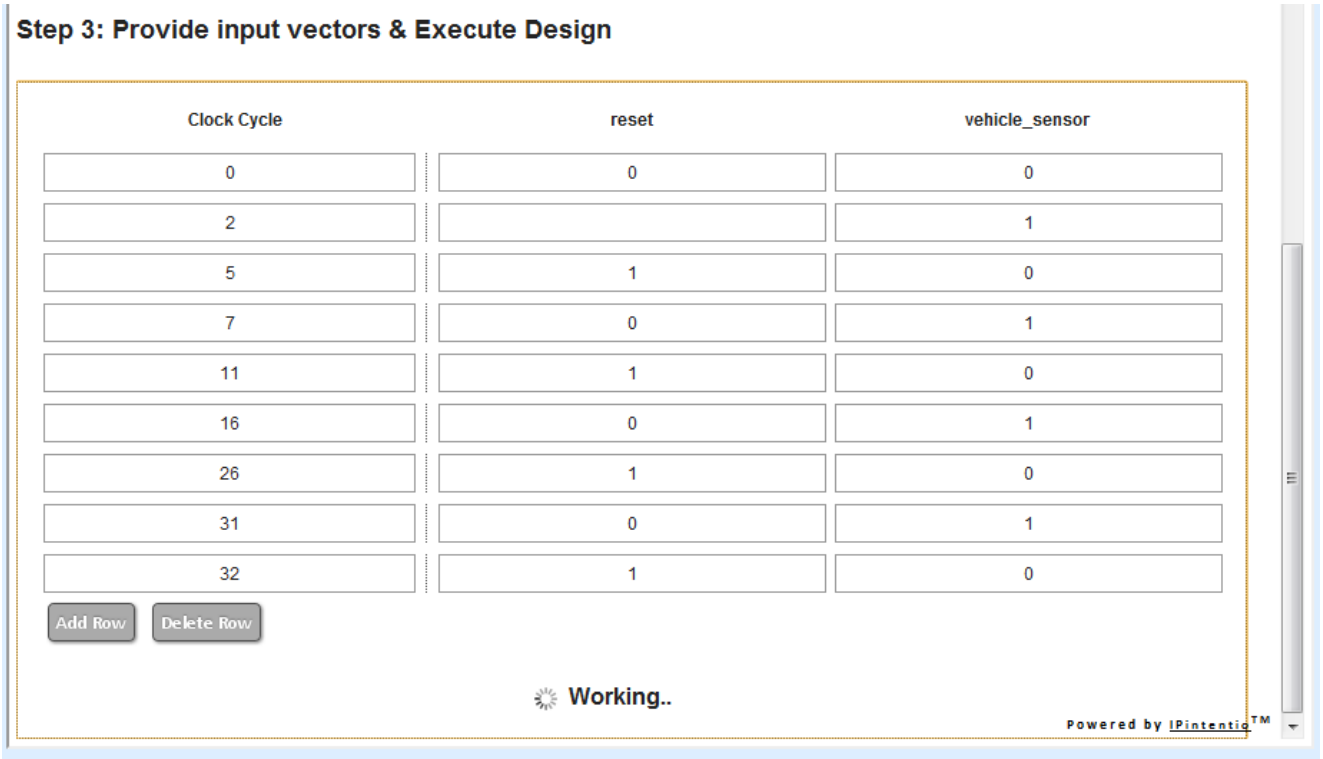

Fig. 2.6 - User clicks on "Set Input Vectors & Execute"

- Output in VCD format is now available to the user for download.
- A log is also displayed which is actually the compilation report of quartus.

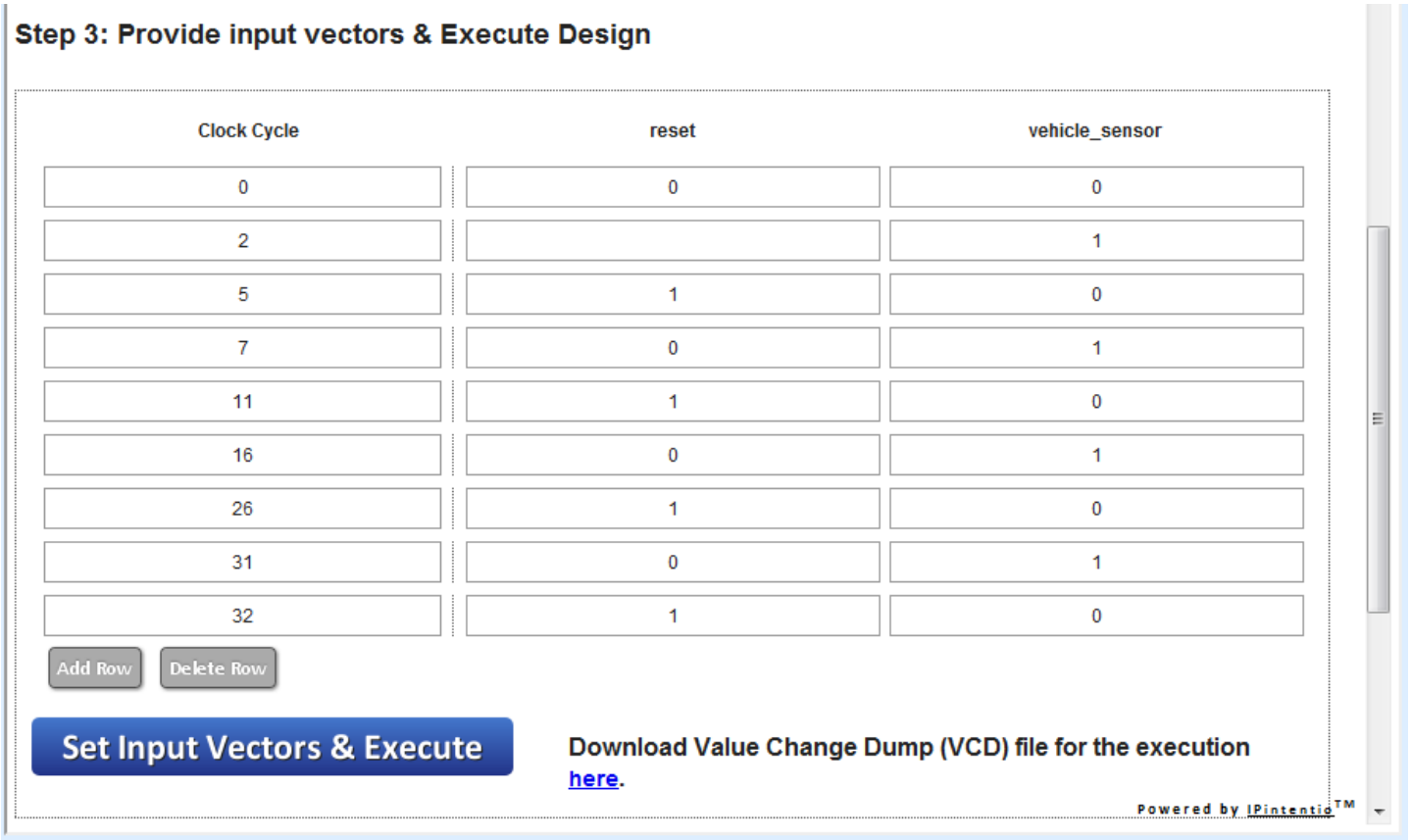

Fig. 2.7 – VCD file ready for download

- Please check at the end of the log for possible error.
- If no error then download the VCD file.

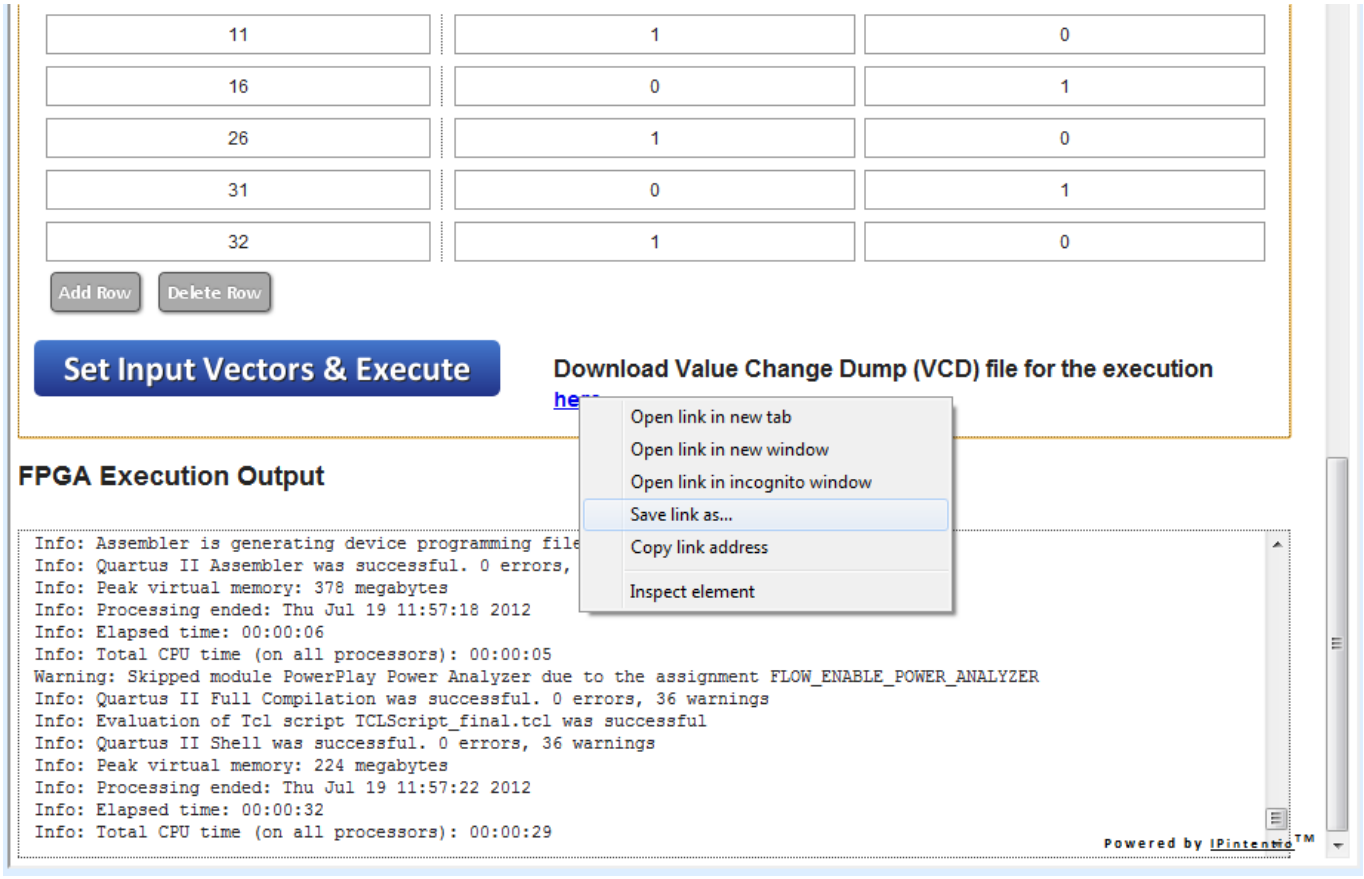

Fig. 2.8 – Download VCD file if no error

- This VCD file can then be viewed on the GTKWave waveform viewer and is illustrated below.
- Goto File>Open New Tab

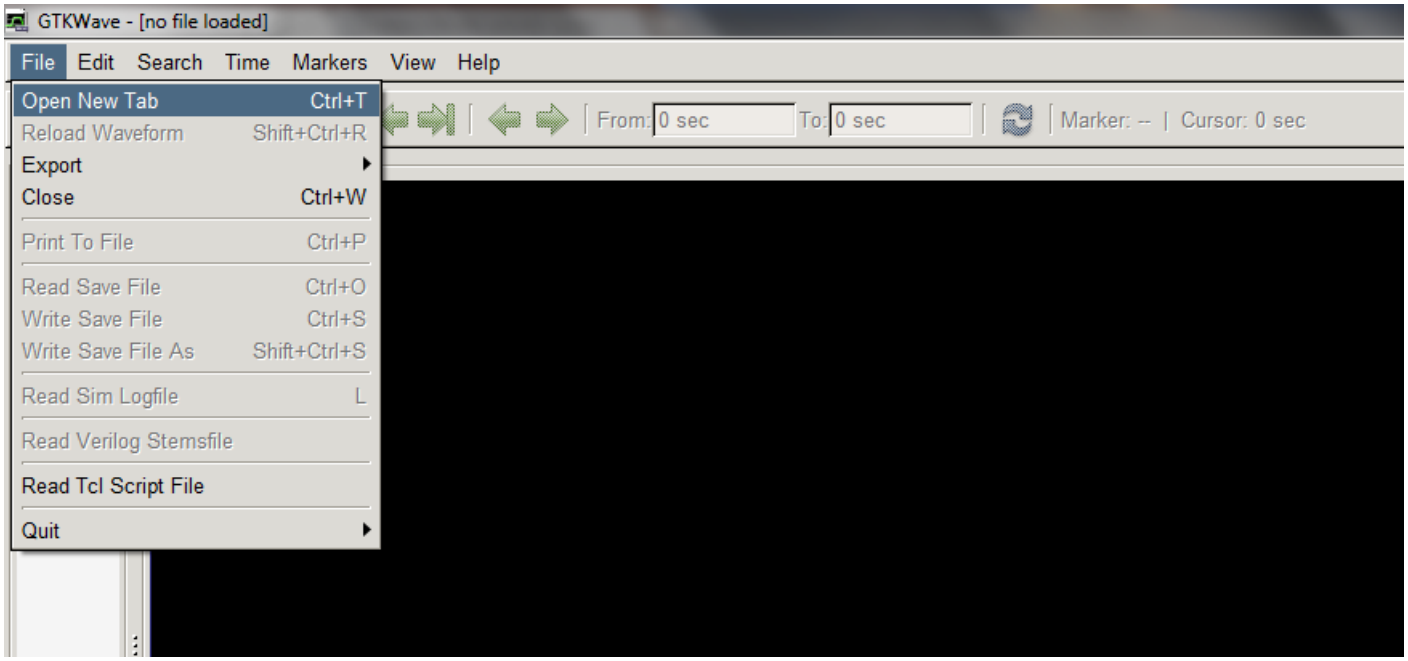

Fig. 2.8 – Open GTKWave waveform viewer (refer to GTKWave installation manual provided)

- Select the file from the directory in which .vcd file is saved.

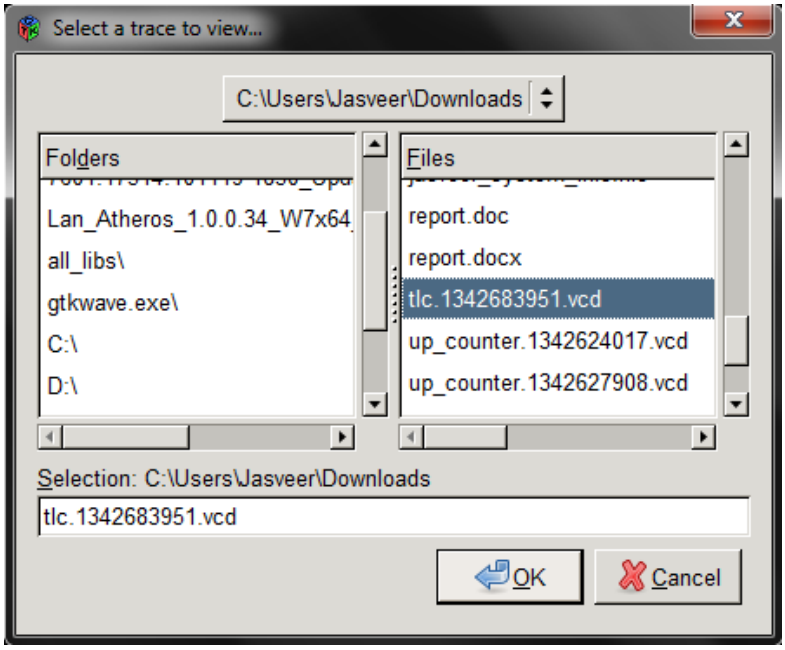

Fig. 2.9 – Select vcd file to be viewed

- The top level module name is now displayed on the top left pane of the GTKWave window.

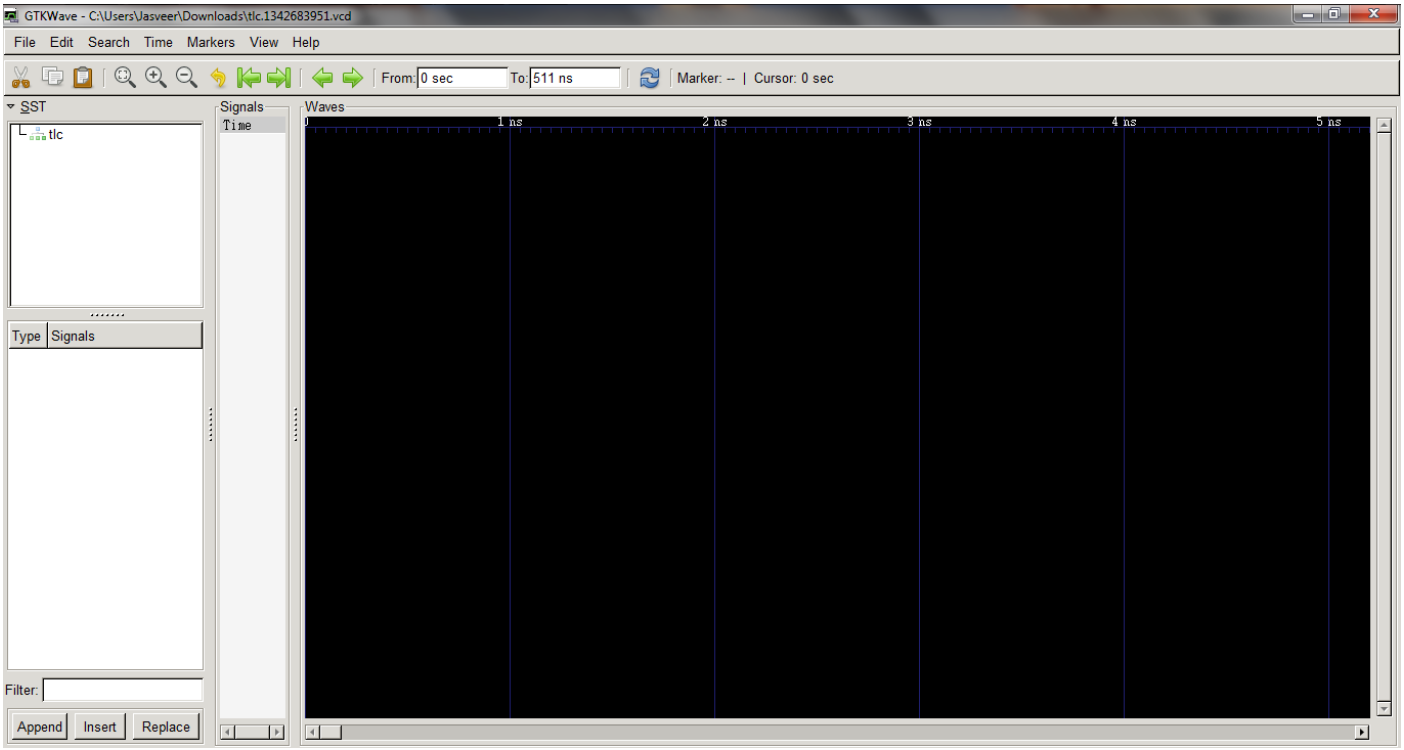

Fig. 2.10 – Select the top level module name displayed on the top left pane of the GTKWave window

- After selecting the top level module name displayed on the top left pane of the GTKWave window, the signals can be seen on the bottom left pane of the GTKWave window.

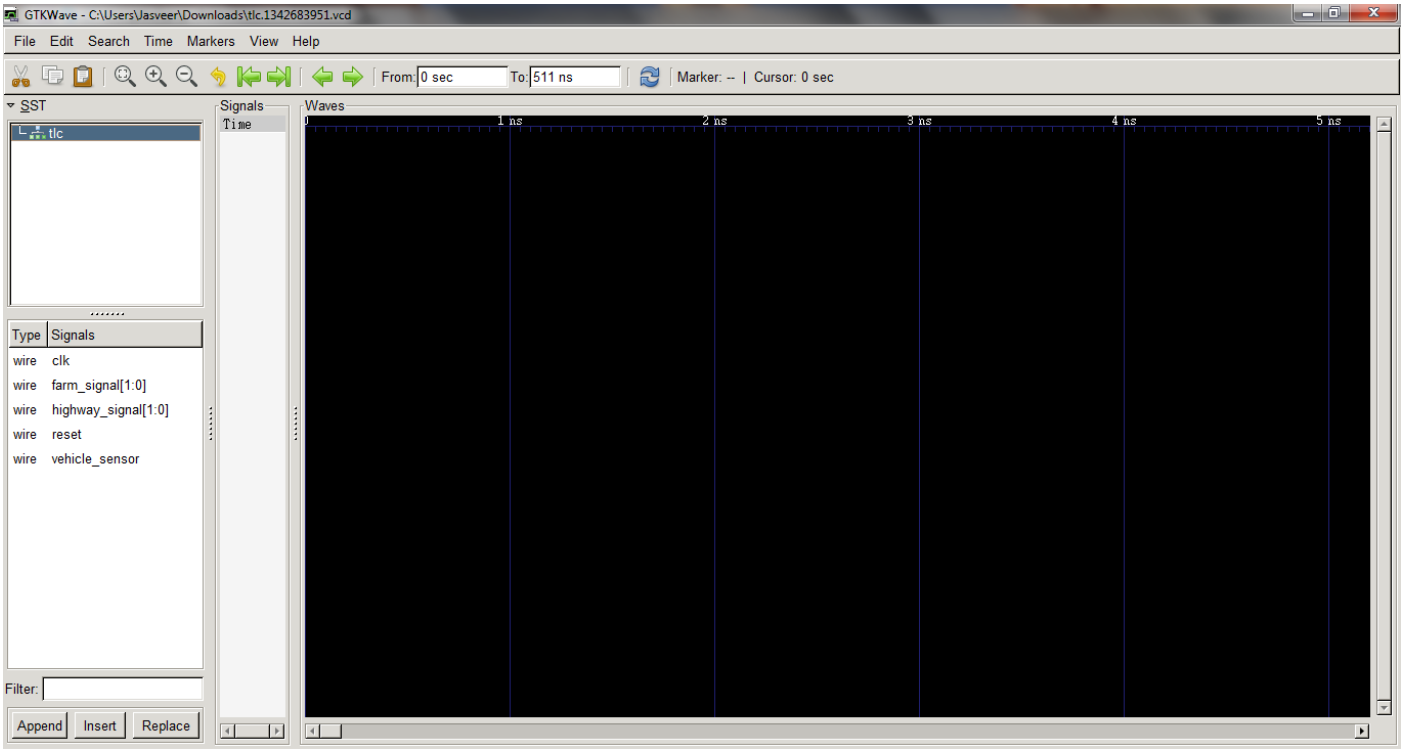

Fig. 2.11 – Open GTKWave waveform viewer (refer to GTKWave installation manual provided)

- Select all of the signals and press the button Append.

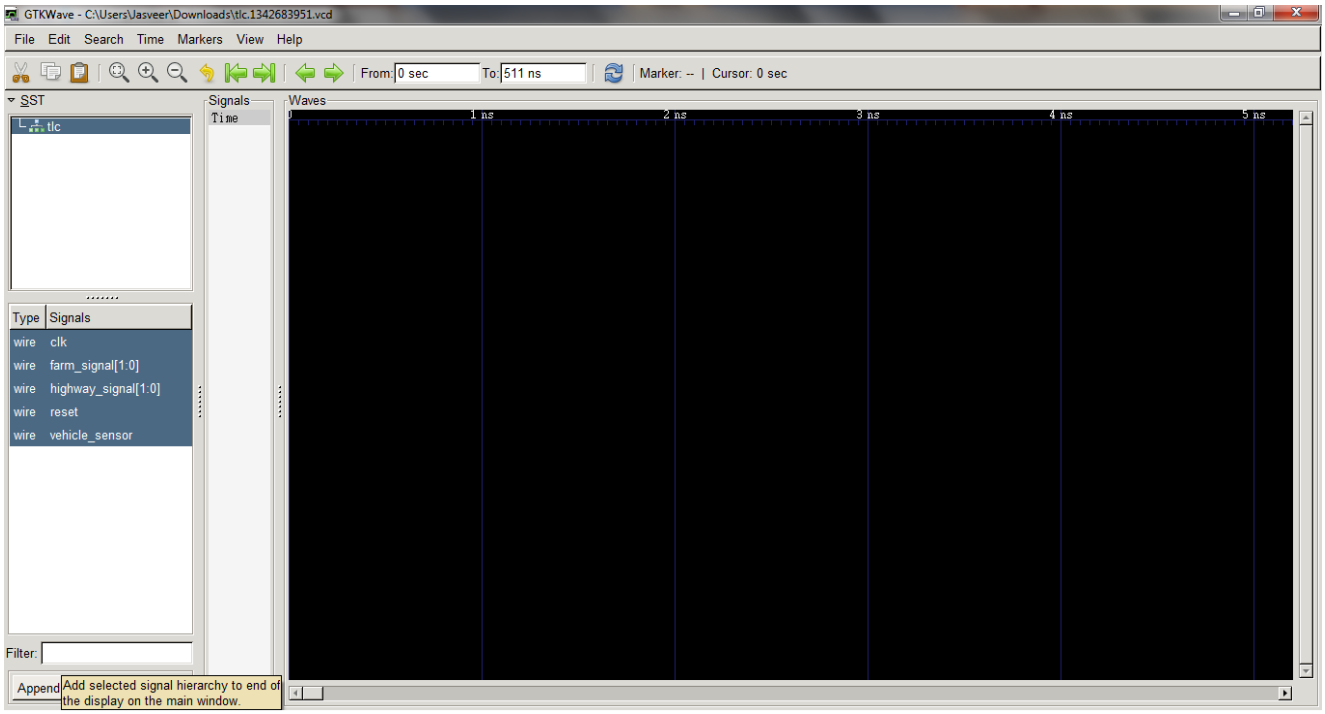

Fig. 2.12 – Select all of them and press append

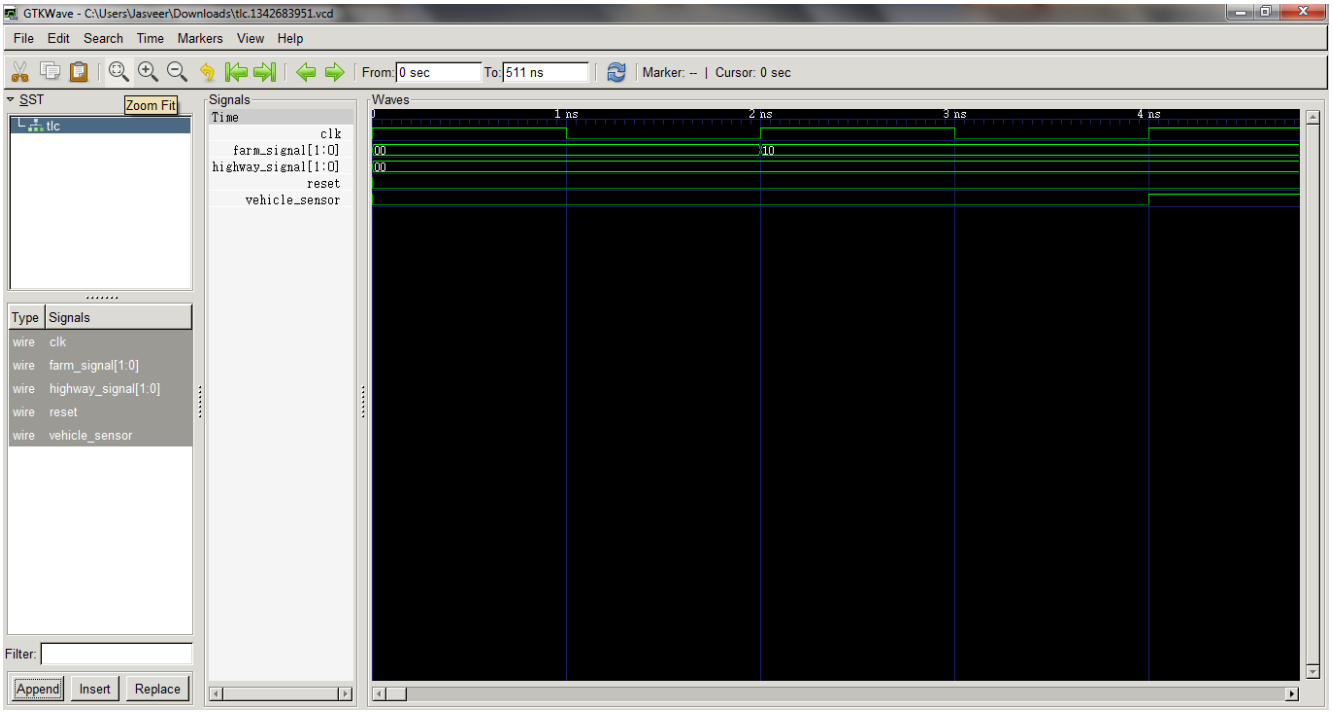

Fig. 2.12 – The waveform can be seen now

- Use the button,  called Zoom-fit to see the whole 256 clock cycles on your screen.
- Use the button,  called Zoom-in to see larger view i.e. less no. of cycles on your screen.
- Use the button,  called Zoom-out to see the large no. of cycles on your screen.