OpenCPI
E31x MIMO RCVR AD5662 Test App Guide

OpenCPI Release: v2.4.8

Revision History

Revision	Description of Change	Date
v1.4	Initial release	9/2018
v1.5	Version bump only	4/2019

1 Description

This application is intended to perform a simulation-only test of the e31x_mimo_xcvr_ad5662.hdl device worker. The application is meant to analyze the properties of the device worker in a simulation environment. An emulator of the e31x_mimo_xcvr_ad5662 device was written in order to be able to inspect the timing of the SPI and ensure the transaction was written properly. ocpirun is used to launch the application and then ocpiview is used to analyze the results via manual inspection. The timing diagram should show the property value clocked in on the falling edge of the clock. The data word is formatted as 23..18 don't-cares, 17..16 power down mode bits, and 15..0 data bits.

2 Hardware Portability

This application currently requires simulation for verification purposes. The intended assembly for use with this application only has a container for the `xsim` platform.

2.1 Prerequisites

The following must be true before application execution:

- The following assets are built and their build artifacts (FPGA bitstream file/shared object file) are contained within the directory list of the OCPI_LIBRARY_PATH environment variable.
  - for `xsim/` HDL platform:
    - `empty/cnt_e31x_mimo_xcvr_ad5662_test_xsim` assembly/container

2.2 Command(s)

```
ocpirun -v -l8 -t3 <e3xx-project-dir>/applications/e31x_mimo_xcvr_ad5662_test/\
    e31x_mimo_xcvr_ad5662_test.xml
ocpiview
```

3 Verification

The following steps are taken for verification:

1. In the simulation window, add `ftop->e31x_mimo_xcvr_ad5662_i->worker->signals` to the wave window
2. The timing diagram should look like the following (after zooming in), clocking in the word 0x7afe after 6 don't-care bits and two 0s for shutdown mode

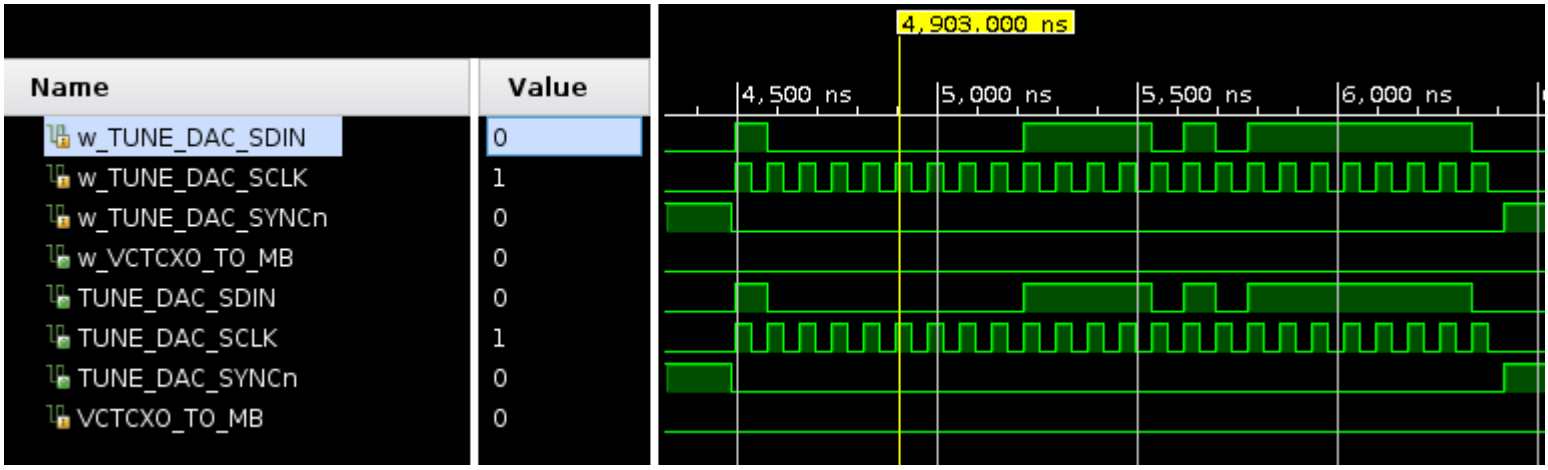

Figure 1: Timing diagram of a transaction of 0x7afe