

Verification of Communication Protocol - FPGA based Design

Executive Summary

The project aimed at implementing a communication protocol specifically designed to transfer measured tank variables from instruments to host computers for a Instrumentation and Process automation company. The design is ported to a Xilinx FPGA. This protocol is a master/slave system based on a physical 2 wire connection to support minimal cable quality and long distance.

Client

The end customer is a Swiss-based instrumentation and process automation company

Business Issue(s) Addressed

The customer is a Instrumentation and Process Automation company with little understanding of VLSI domain. KPIT Cummins worked closely with the customer to give the confidence and comfort factor.

Broadly, the challenges can be listed as

- Client has very preliminary knowledge of VLSI design and flow.
- The inputs from the customer were not sufficient to estimate the resource & time effort
- Understand the project requirements and the black box specifications
- Close interactions and discussions on a regular basis to understand the project

Key Achievements / Deliverables

- Deliverables were given on or before time.
- No bug captured during implementation or on-chip verification at client's site as it was thoroughly verified by Verification Team in India.
- Changes and delay in client's module did not affect the timelines of our deliverables
- The design fitted well within the area and speed constraints.

KPIT Cummins Contribution

KPIT Cummins leveraged the experience and understanding of communication protocol requirements and implemented the same. KPIT team successfully delivered the FPGA design. The design has gone through Field Testing and is proven across all corners. This was very much appreciated by client.