



VITAL BOARD FOR PRECISION STATION STOP

Datasheet

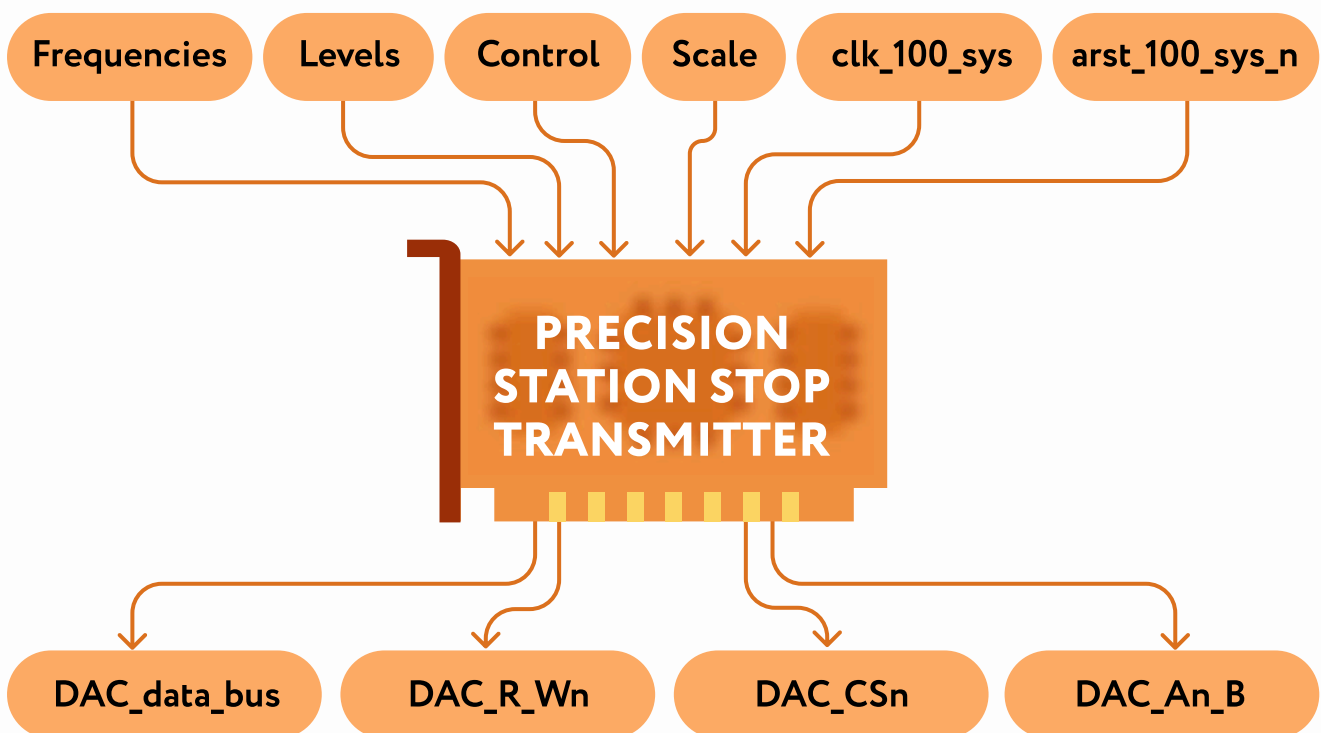


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PROVIDING SOLUTIONS FOR TOMORROW – SINCE 1993

Project objective

Empower the client's programmable wayside product with train positioning functionality to enable precision station stops. This functionality would represent one of three operation modes of the board and be implemented within a frequency resonance-based position tracking method.



Result

The designed wide-band signal transmitter provides high-precision positioning of trains to ensure accurate stops at designated locations. It generates ten simultaneous carrier frequencies within the FPGA through programmable hardware, each with independently configurable frequency and amplitude. The transmitted signal causes resonance with a tuned wayside circuit at a specific frequency, detected as a marker for position.

Scope of work

- ❖ Design for the transmitter of wide-band signals. Solution overview, module decomposition, design architecture detalization
- ❖ Transmitter modules implementation: frequency synthesizers, carrier amplitude level controls, carrier combinator, digital-to-analog converter interface
- ❖ Implementation of testbenches
- ❖ High-level test plan and test cases creation. System validation in a simulation environment

Activities

- ❖ Requirements definition
- ❖ Architecture design
- ❖ Specifications creation
- ❖ Firmware development (FPGA)
- ❖ GUI implementation
- ❖ Simulation testing

About the project

Technologies

- ❖ VHDL
- ❖ Embedded C
- ❖ TCL
- ❖ LabVIEW
- ❖ ModelSim
- ❖ Altera Quartus II
- ❖ MATLAB

**TCL**

LabVIEW™

ModelSim.**MATLAB®**

Project size

- ❖ 3 Software Engineers

Duration

