

Project Note

High speed electronics for rail technology

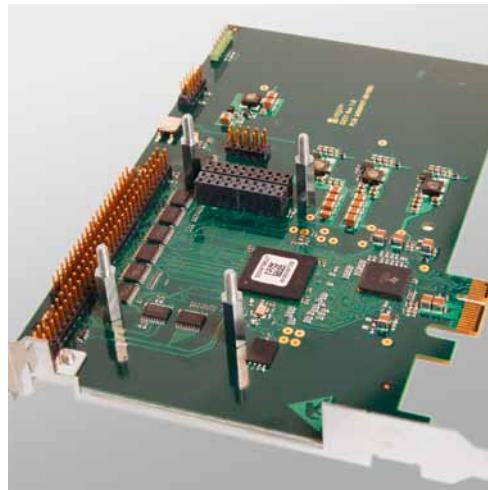
Zühlke has developed a special PCI express card for a manufacturer of communications technology for rail vehicles. As a result, the client receives VHDL design, electronics and software drivers all from one source.

Task

Duagon develops and produces communications equipment for rail technology. Thanks to their products, suppliers of components such as doors and air conditioning systems can use their standard interfaces irrespective of the existing communication network (e.g. MVB, CAN or Ethernet). In order to be able to test new products easily and at an early stage, Duagon provides a test system to its clients. It emulates a network component on a PC. Zühlke was commissioned to develop a PCI express card with drivers for various operating systems in order to enable communication with products that are to be tested.

Implementation

Based on the Zühlke process for product development, the engineers used a pre-study phase to outline the exact requirements in a set of specifications, draft various possible solutions (including manufacturing costs) and then assess these together with the client. The system design phase was used to provide further details of the favoured solution in a more detailed set of specifications. In order to minimise development risks, Zühlke verified core functionality using a functional model. The realisation phase saw the creation of PCB, VHDL design and drivers for Windows XP / Vista and Linux. As PCI express works with GHz signals, the critical lines were configured in a manner that permitted length and impedance to be checked. Thanks to the careful design and the close monitoring of the production, the prototype worked straight away and could be delivered to the client on time.



Technical Data

- Altera FPGA
- VHDL
- PCI-Express-Softcore
- Altium Designer
- Jungo WinDriver for Windows XP/Vista and Linux

Customer benefits

- Zühlke's methodical approach gave rise to a high quality realisation of the whole project on time and within budget.
- Zühlke's interdisciplinary skills and expertise allowed the development to be carried out by a single supplier (VHDL design, electronics and Software drivers).
- The specialists used an existing evaluation board in order to ensure efficient development of the functional model.

Zühlke Engineering AG
Wiesenstrasse 10a
8952 Schlieren (Zurich)
Switzerland

Phone +41 44 733 6611
Fax +41 44 733 6612
zuerich@zuehlke.com
www.zuehlke.com