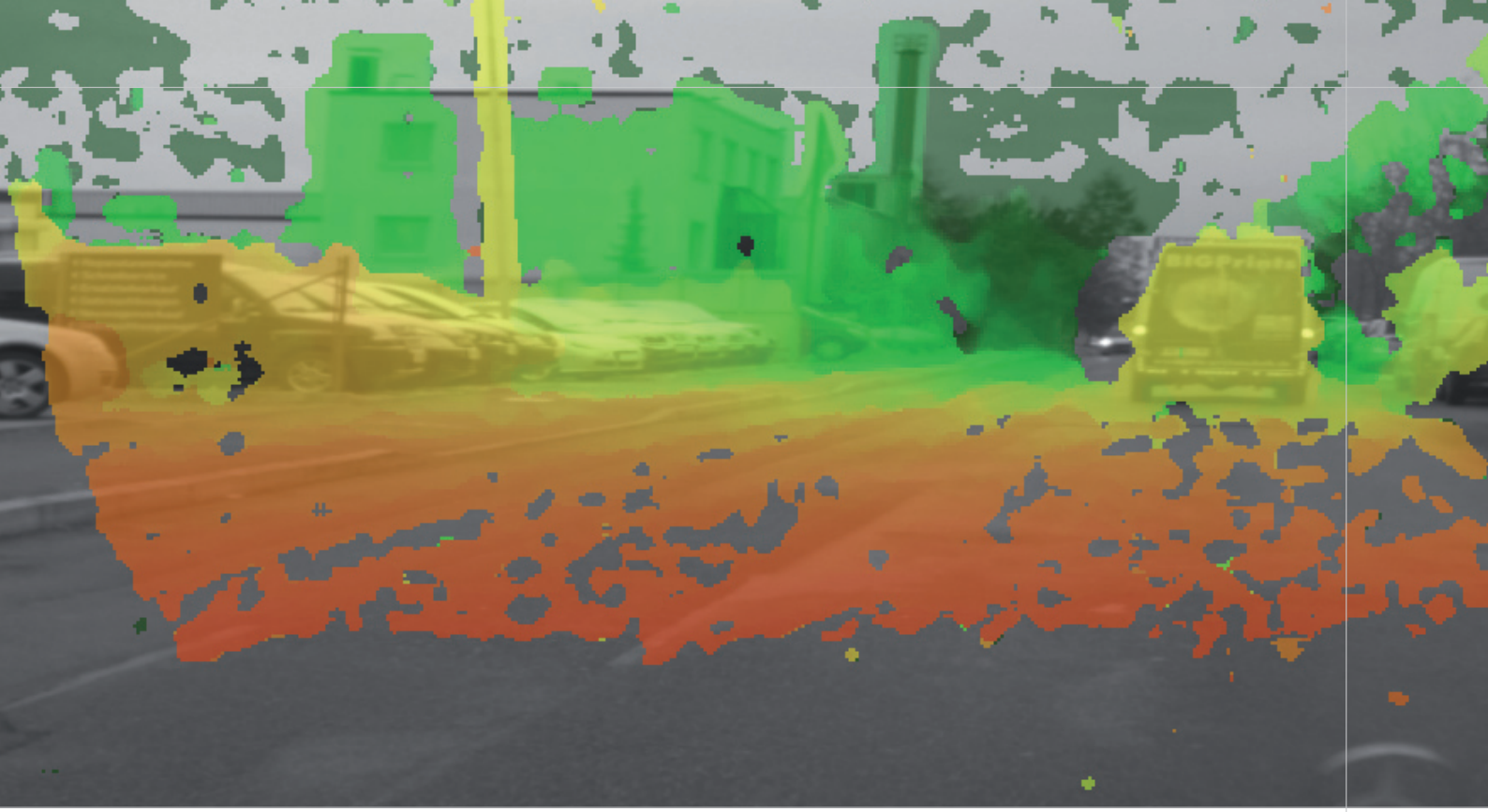
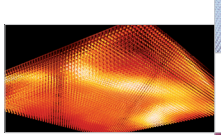
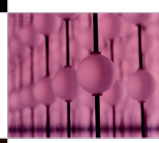


Image processing FPGA system for the automotive industry

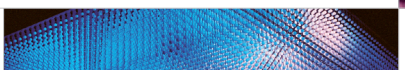
FPGA solution for real-time stereo-image processing

- Porting the algorithm onto a FPGA platform
- Faster than PC implementation by a factor of 50
- Test system in prototype vehicle





Super computing systems

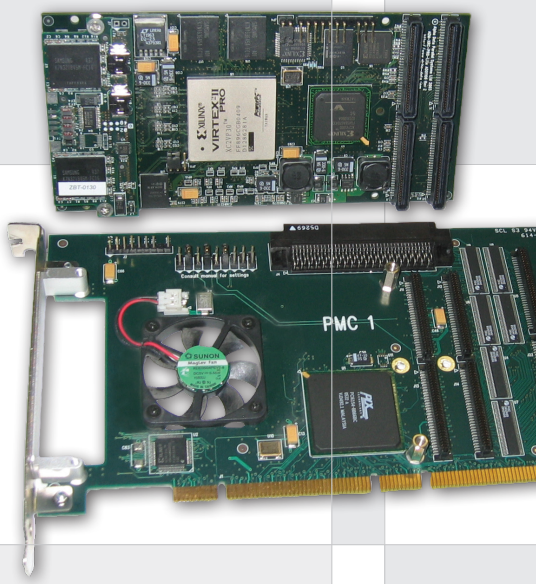


Innovative safety engineering

The research department of a well-known german car manufacturer is developing highly complex image processing algorithms for new driver assistance and safety systems. A specific example is the dense and exact calculation of the 3-dimensional structure in front of the vehicle using the video-images of two cameras. This information will allow future cars to evaluate their immediate environment and determine, as well as predict, the position of other vehicles, obstacles and pedestrians.

Pentium4-PC is slower by a factor of 50

The complex software was developed by our customer on a dual Pentium PC. The project aimed at demonstrating the suitability of algorithm for its implementation on an automotiv qualified FPGA.



The optimised solution

Supercomputing Systems AG decided to use a development board with a Xilinx Virtex4 FPGA that exchanges image data by PCIe. The analysis of the algorithm was followed by the design, implementation and test on the FPGA. Further optimisations were performed, thereby power consumption was reduced and the implementation on an automotive compatible Xilinx Spartan 3A-DSP FPGA proven feasible. The processing power of the FPGA solution surpassed the PC by a factor of 50. The PCIe-card prototype in the experimental vehicle demonstrated the feasibility of the algorithms for future cars.

Effectively proven cooperation

Design, development, optimisation and testing required less than 4 months. Due to the professional and creative cooperation of both companies engineering experts the specified goals were effectively achieved at first go.

Partner for embedded engineering

As a member of the Xilinx Alliance Third Party Program, Supercomputing Systems AG is a Xilinx FPGAs-product and service provider. These includes a large variety of hardware and firmware development, as well as consulting-services. The long cooperation with Xilinx allows an expedited development cycle for new products.

Supercomputing Systems AG stands – especially within the scope of the automotive and machine industry – as an innovative, flexible and customer-oriented partner, that implements special developments in the computer technology field and offers optional support in integration and production.

Xilinx Alliance Program

Supercomputing Systems

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