sesamenet
SUPERCOMPUTING EXPERTISE FOR
SMALL & MEDIUM ENTERPRISE NETWORK

Virtual Prototyping

HPC-Competence Center

IT4Innovations National Supercomputing Center is an important part of e-Infrastructure of the Czech Republic focused on HPC research and services. The Center operates the most advanced HPC technologies and services and makes them available to Czech and foreign research teams from both academia and industry. One of the key functions of the IT4Innovations National Supercomputing Center is to support industry in the Czech Republic.

IT4Innovations national supercomputing center

Enterprise

The company BORCAD cz was established in 1990 as a construction and development studio. Today BORCAD cz is a leading European producer of railway and medical technologies. The company employs 190 people, exports to more than 80 countries worldwide and thanks to its unique design and original construction solutions, it is one of the most innovative companies in this field.

BORCAD®

How HPC makes the difference

Numerical modelling and simulations are commonly used in the research and development of new products because they significantly shorten the time necessary to bring a new product to the market and also save a lot of money. The old fashioned way of product development by trial and error, where usually quite costly prototypes have to be built and tested, is increasingly being replaced by numerical modelling of virtual prototypes.

IT4Innovations has cooperated with BORCAD since June 2013. The company searched for a solution of a problem they had with entering the UK market with passenger seats for regional and long-distance rail transport. BORCAD needed certification that their passenger seat complied with regulations. The certification process involves a crash test which checks not only seat integrity but also bio-mechanical criteria measured on crash test dummies. Since physical tests are very expensive, BORCAD decided to use numerical modelling and simulation to perform a virtual crash test on new designs and perform only two physical tests. The cooperation helped BORCAD to obtain the certificate after successfully passing the crash tests with much less resources and time invested.

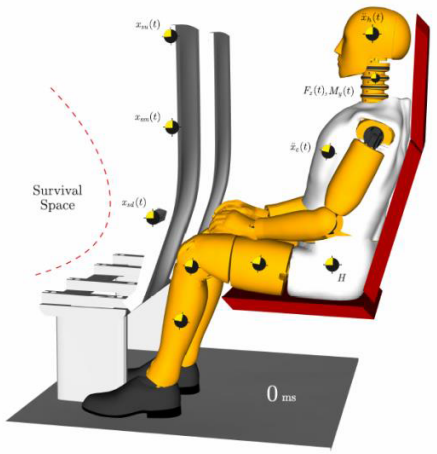

Fig: Simulation of crash test of railway passenger seat.