

# Reduce Risk of Test Failure with Fracture Prediction

## Cray, Altair and PSA run fracture prediction simulation in under 24 hours

Crash and safety simulation has taken a lot of guesswork out of the design process and improved vehicle — and passenger — safety dramatically. But unknowns remain.

Chief among those unknowns is predicting how metal will tear or fracture in a vehicle crash. The reason is because fracture prediction requires a level of model fidelity only possible with mesoscale modeling — a level impractical with a typical compute environment. It means that even with today's high-fidelity simulations, the risk of failing the mandatory physical tests remains. And if a structural fracture happens, it can cost hundreds of millions of dollars in redesign.

Cray, Altair and the PSA Groupe teamed up to investigate the modeling and compute requirements necessary for fracture prediction. Could it be done in a reasonable amount of time and at a reasonable cost? Taking real automotive geometry from PSA, a Cray® XC™ supercomputer and Altair's structural analysis solver RADIOSS, the team ran a 50-million-element side-impact "B-pillar" model in less than 24 hours. Their work shows that with the right tools, fracture prediction is a practical part of the design process.



### MORE INSIGHT = LESS RISK

Fracture prediction gives you critical insight into your design before it goes to physical test. Make this important simulation part of your design process with Cray supercomputing and Altair RADIOSS structural analysis solver. Cray, Altair and the PSA Groupe ran a 50-million-element side-impact "B-pillar" model with excellent correlation to physical test results in less than 24 hours.



### PRODUCTION-READY SOLUTION

Take immediate advantage of fracture prediction insight. Cray, Altair and PSA used a production-ready Cray XC system and a standard version of RADIOSS — not R&D tools. The application scaled up with no special optimizations.



### SOLIDIFY YOUR LEADERSHIP

Cray empowers your design team, drives innovation — and helps you solidify your technical and market leadership. Our systems deliver the compute power that gives you increased accuracy and faster turnaround for more design exploration and sets you up to accelerate your development pace.

## Work with the supercomputing leader

Cray provides you with leading-edge solutions and expertise to build your leading-edge manufacturing environment. From architecture to deployment, we have 40+ years of experience building systems for manufacturing organizations with the most demanding requirements.