SIMULIA
DesignSight Structure (DSR)

Enables up-front realistic simulation of parts under structural loading conditions

Overview

DesignSight Structure (DSR) is the first in a suite of DesignSight simulation products to enable occasional users of simulation to model the complexities of real-world scenarios. The DesignSight Structure product leverages proven Abaqus FEA technology to model and simulate the realistic behavior of single parts under a variety of loading conditions with the goal of providing insights to help designers improve their designs.

DesignSight is for occasional users of simulation who have limited training in FEA. With DesignSight the user is guided through the process of performing a simulation. ExSight, on the other hand, is an expert level product. It allows the user full access to all the expert analysis tools. CATIA Analysis works as a hybrid of DesignSight and ExSight. It is a tool developed for designer analysis, however it contains analyst capabilities similar to ExSight, and the user experience is not guided.

Using DesignSight Structure, the designer interacts with the robot to define the load application location, orientation, and magnitude on the steering knuckle.

Features and Benefits

- Simulate realistic behavior under structural loading conditions
- Stress and natural frequency simulation methods are available
- Leverage proven Abaqus FEA technology
- High performance on multi-core workstations
- Run on remote HPC clusters when Abaqus tokens are available
- Automatically generates the right mesh with adaptive refinement
- Based on the new V6 lifelike user experience
- Provide guidance at all times to help the user understand what to do next
- Natural extension of the design experience
- Advanced simulation technology with an easy-to-use interface

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DSR Highlights

Fosters creativity through up-front simulation

DesignSight is a natural extension of the design experience in V6 PLM, enabling users to study their design's behavior and to explore different design options. DesignSight is designed to be easy to use and includes functionality required to simulate the complexities of real-world behavior.

Enables occasional users of simulation to simulate their models under realistic loading conditions

The user experience eliminates the need to understand analysis technology. Advanced analysis technology is handled automatically, while the options presented to the user are intuitive and explained in the language of designers. For example, nonlinear analysis is performed automatically so that the user does not need to choose between linear and nonlinear. Another example is that the finite element mesh is created and adaptively refined automatically to ensure high-quality results for each simulation. To make the user experience even more appealing, users receive continuous guidance regarding where they are in the simulation process and what they need to do next, so that they are never lost.

Simulations automatically managed through V6 PLM

DesignSight leverages the values and benefits of V6. In particular, DesignSight provides a 3D lifelike experience, in which the user interacts directly with the 3D model with minimal reliance on icons and dialog boxes. V6 PLM manages all aspects of design, from part design to product assembly and through to simulation attributes and results.

## Provides high-quality results using the latest Abaqus FEA technology

DesignSight uses proven Abaqus technology providing reliable results backed by more than 30 years of development. Industrial R&D and academic researchers have long considered Abaqus FEA a premier tool to help solve some of the most vexing engineering and design problems. DesignSight makes this state-of-the-art technology more accessible than ever before.

Rapid turnaround time of large models using high-performance computing resources to enable more design iterations

DesignSight includes cutting-edge computation technology to utilize the power of modern multi-core workstations to obtain simulation results quickly. Users with access to a compute cluster and Abaqus tokens can seamlessly run the simulation on the cluster and use up to 128 cores or more for extremely rapid turnaround times of large models.
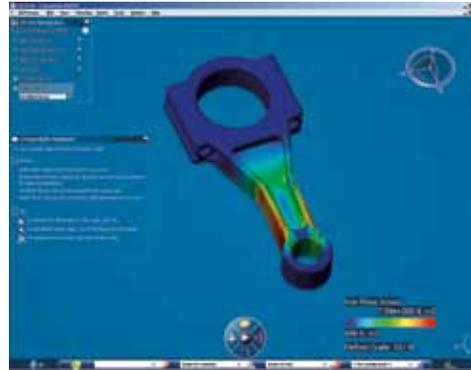
DesignSight enables the designer to quickly evaluate the stress in a part and validate the design.
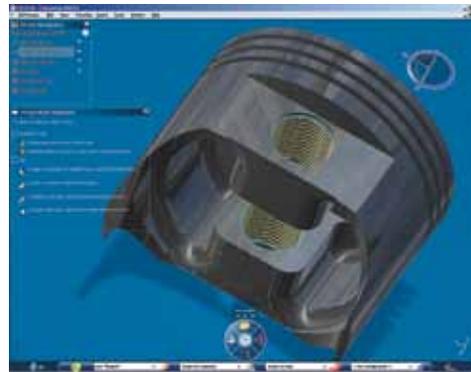
DesignSight provides unique, embedded help tools that guide users through the steps to define a simulation. The Stress Simulation panel and the DesignSight Assistant are always available to ensure that the necessary tasks are clear.
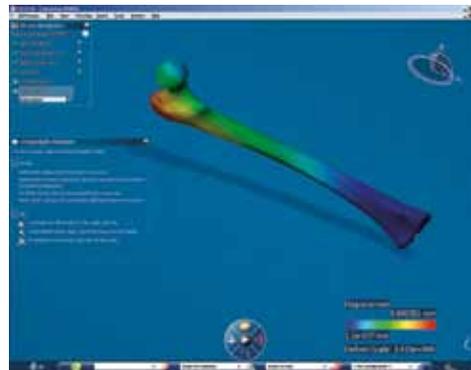
Using DesignSight Structure (DSR), the designer can study the reaction of parts subjected to a load and visualize the resulting displacement as illustrated by this complex human bone model.

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