



LET US
BOOST
YOUR DESIGN PRODUCTIVITY

SIMDES PARTNER SERVICES

- › Finite element analysis (FEA)
- › Finite element modelling (FEM)
- › Design optimisation
- › Composites FE analysis
- › CAE software automation and customisation
- › Contract staffing

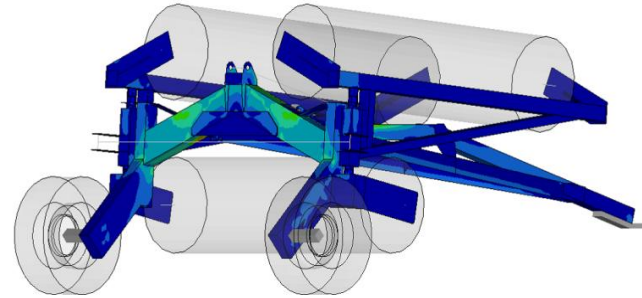
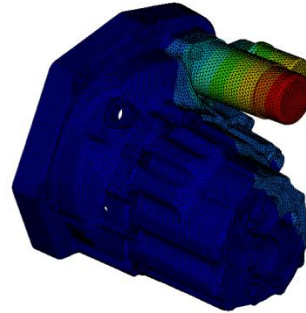
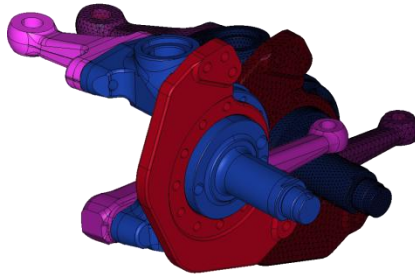
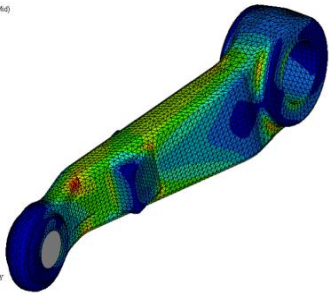
Gain a Competitive Edge with SimDes Partner Engineering Solutions

- To be competitive in today's product market, you need to continuously improve your product development and manufacturing process.
- SimDes Partner helps its customers to gain a competitive edge through innovative solutions and professional engineering expertise.
- Our services will help you bring your product to market faster, improve quality and reduce overall cost.

Control Plot
Dimensionless, Mid
Global System
Advanced Average

120
105
90
75
60
45
30
15
0

Max = 396
Node 10272
Min = 0
Node 107288

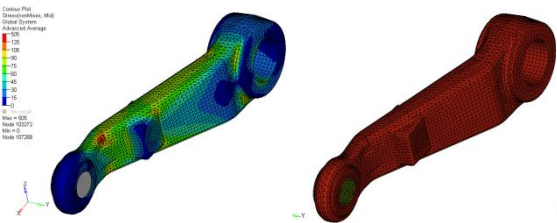


Services we offer:

- › Finite element analysis (FEA)
- › Finite element modelling (FEM)
- › Design optimisation
- › Composites FE analysis
- › CAE software automation and customisation
- › Contract staffing

Industries we serve:

- › Aerospace
- › Agriculture machinery
- › Automotive
- › Oil & Gas
- › Sporting goods
- › Many others



Analysis capabilities

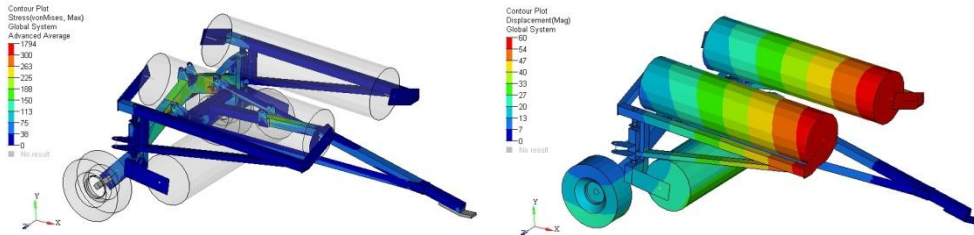
Verify or improve your design before you "cut metal" and save days of work on reworking and improving your design. SimDes Partner engineers can execute several types of structural and thermal analysis for clients using trusted CAE software including Abaqus, Ansys, HyperWorks, LS-Dyna and PAM-CRASH.

- Linear and non-linear analysis
- Vibration, natural frequencies, forced response, etc.
- Fatigue & fracture: LCF, HCF, crack propagation, etc.
- Explicit dynamic: crash, impact, blast, etc.

Return on Investment

In many cases, finite element analysis pays for itself by reducing the time spent on reworking and improving 'defective' design and eliminating material waste by reducing the number of prototypes. There are many other sources of investment return you may experience like:

- Product quality improvement
- Field failure avoidance
- Faster time to market
- Avoidance of recalls

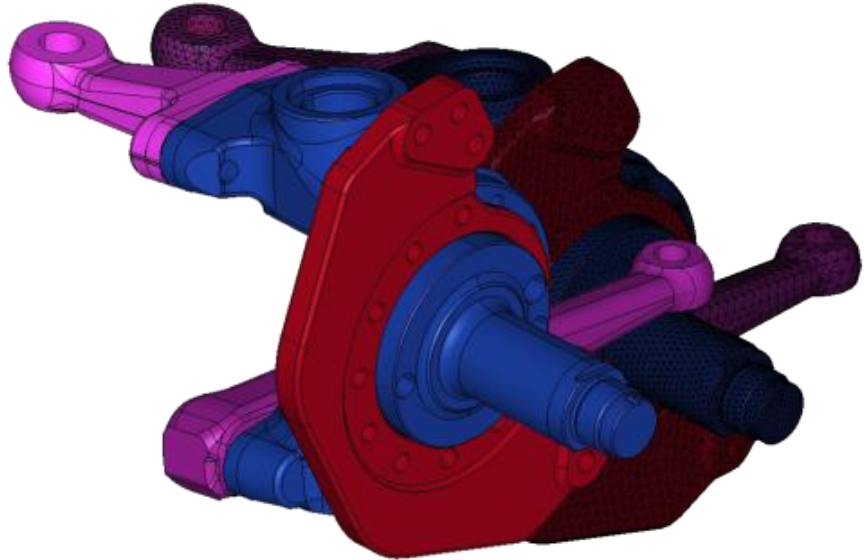


Let your engineers focus on analysis results and improving your product design instead of meshing. We are delivering ready-to-run FE models for many commercial CAE solvers including Ansys, Abaqus, Nastran and LS-Dyna.

- › 1D mesh, beams, springs
- › Shell models, mid-surface extraction
- › Solid models (hex, tetra, etc.)
- › Layered and homogenised composite modelling

Garbage in, Garbage out

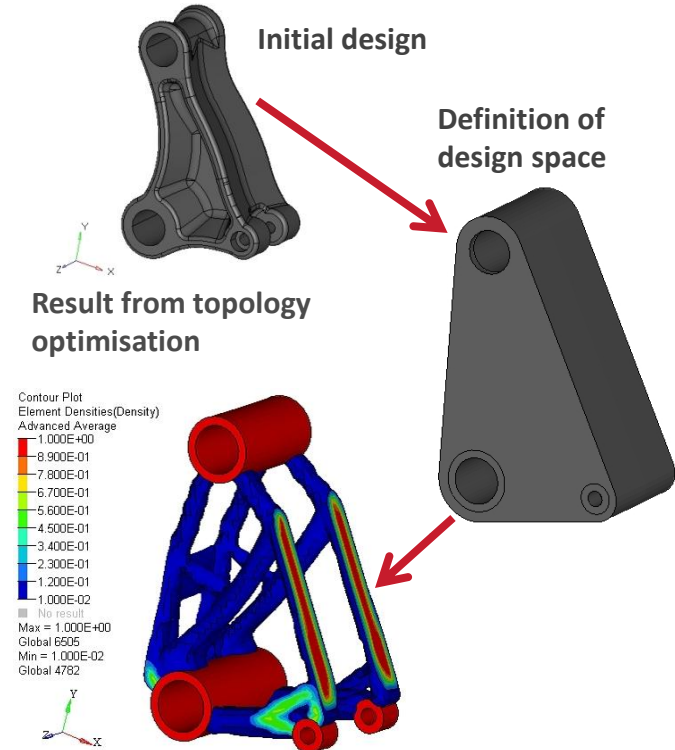
- › Having years of experience, our engineers know how to create accurate and error-free FE models.



SimDes Partner offers not only FEA verification of products with a simple yes/no answer on whether a design is meeting all structural requirements. In addition to general recommendations and guidance on how to improve design performance, SimDes Partner also delivers comprehensive structural design optimisation services. Depending on the design stage we can conduct sizing, shape and topology optimisation.

- **Topology optimisation:** obtain an initial design with optimal load paths and minimum weight
- **Shape optimisation:** determine optimal shape to fulfil stiffness, strength and durability requirements
- **Sizing optimisation:** applicable for components with fixed shape and topology. Widely used at the detailed design stage where only the fine tuning of a product's geometry is necessary

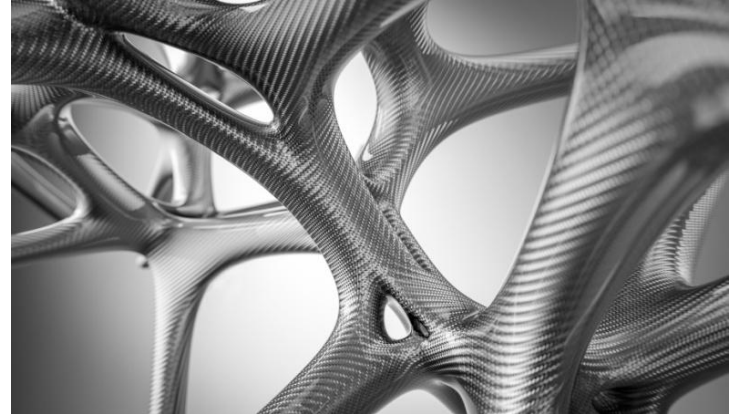
Topology optimisation case



Solid theoretical knowledge and practical experience characterise our FEA composite team, these ensure analysis accuracy and reliability. We can model the most complex composite structures and, at the same time fully understand the potential failure of product models.

SimDes Partner composites analysis expertise includes:

- › Structural stress analysis using linear and nonlinear models with multiple contact conditions
- › Vibration analysis of single components or complex assemblies with or without pre-stress effect
- › Laminate analysis (analysis of strain and stresses in each lamina in the laminate)
- › Ply failure theory
- › Explicit dynamic: crash, impact, blast, etc.
- › Damage prediction



The Finite Element Analysis process consists of several phases where automation can be employed to save time and money. You can easily remove repeatable tasks using scripting that most of the commercial CAE programs offer.

If you are working most of the time with the same family of products, you may gain benefits by customising CAE software and making life simple for your engineers. We can create custom GUI for most commercial software to speed up the simulation process.

Our engineers are professional in:

- › APDL-Ansys
- › Tcl-HyperWorks
- › Python-Abaqus
- › Fortran-Abaqus

Automation & Customisation in Finite Element Analysis Process



- ✓ Fully/partially parameterised geometry
- ✓ Custom meshing tools and functions
- ✓ Automated loads and boundary conditions application
- ✓ Custom functions for mesh/component patterns
- ✓ Automatic material/property assignment
- ✓ Custom toolbars/panels
- ✓ Parameterised input file
- ✓ Automatic graphs and contours generation
- ✓ Custom results calculation
- ✓ Custom result files generation for data exchange with third party software

Python

Tcl/Tk

APDL

Fortran

Increase your workforce flexibility and choose best candidate for your team and project

We provide a complete range of design and simulation engineering services designated to enhance our customers' operations. Our network of experienced engineers enables us to deploy the right people at short notice and for flexible periods of time according to clients' requirements.

Our experts have worked across multiple industries using a wide range of CAD and CAE software.

Our personnel can work independently or jointly with the customer's teams on-site using their own work stations with all the software needed to perform the activities if required.



We understand that every design is unique and requires an individual approach to satisfy our customers' expectations and needs. Therefore if you need to discuss the services we offer, do not hesitate to call us or email us.

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Challenge us!