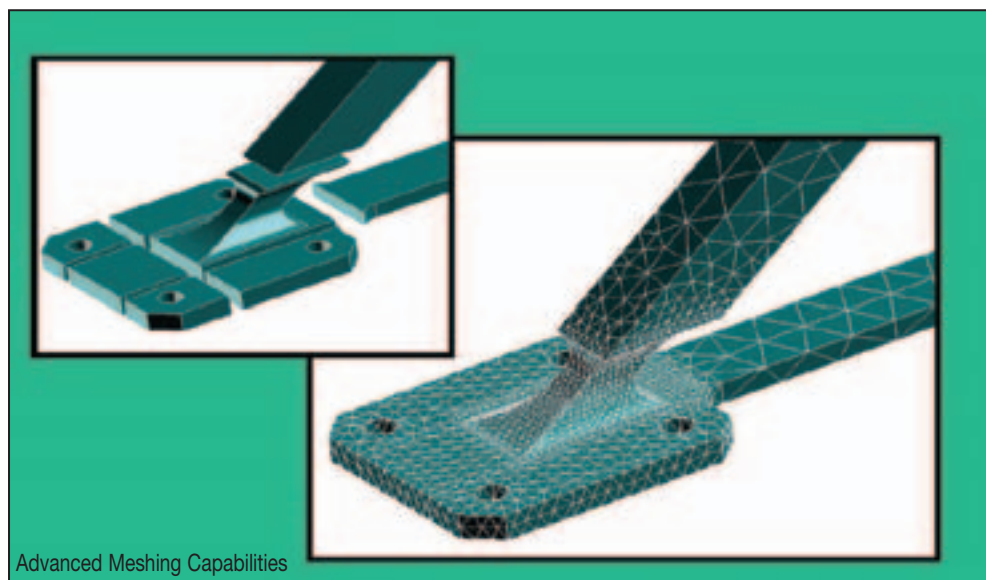


MSC.FEA™

The Power of MSC.Nastran™ & MSC.Patran® in an Integrated Environment



Overview

MSC.FEA™ 2004 is a package of advanced simulation products for the analysis of components. MSC.FEA cost effectively brings together the advanced finite element analysis capabilities of MSC.Nastran™ and the leading CAE modeler, MSC.Patran® in an integrated environment. Together they allow the user to perform a wide variety of structural, thermal, and optimization analyses.

MSC.FEA can be applied to solve a wide-range of problems across a variety of industries including aerospace, automotive, biomedical, and electronics. MSC.FEA allows the analysis and solution of engineering problems, from the simple to very complex, including problems with multi-body contact, multi-step loading, nonlinear material, and geometric nonlinearity. Many complex material models are supported including composites, viscoelastic materials, and elastomers.

MSC.FEA enables companies to create analytical geometry models or leverage existing investment in design tools by providing unparalleled integration with computer-aided design systems. A comprehensive set of finite element analysis modeling tools are available to create finite element meshes and to apply a variety of element properties, material properties, and loads and boundary conditions allowing various configurations to be evaluated. Access and visualization of your analysis results is simple and straightforward permitting both design and analysis engineers to collaborate early in the product design phase.

Capabilities

- Model Preprocessing
 - Comprehensive CAD integration allowing model import from all of the major CAD packages
 - Variety of methods for applying element properties, constraints, loads, and more
- Engineering Analysis
 - Robust structural analysis capabilities involving several engineering disciplines including linear statics, normal modes, heat transfer, nonlinear, optimization, and more
 - Multi-discipline analysis - utilize the results of one kind of analysis as input to another analysis type
 - Sparse matrix solver for fast and accurate solutions
 - Complex problem analysis involving nonlinear materials, geometric behavior, and contact
- Results Postprocessing
- Open Architecture

Benefits

- Reduce the time required to develop high-quality engineering analysis models, increase productivity, and reduce risk with proven simulation tools
- Achieve tighter collaboration between design and analysis engineers through comprehensive CAD system data integration allowing model import from all of the major CAD packages
- Improve designs by understanding how they function in operating environments that involve nonlinear materials, geometric behavior and contact
- Gain access to the power of integrated computer-aided engineering at an affordable bundle price

Preprocessing using MSC.Patran

MSC.FEA allows access to all the powerful preprocessing capabilities of MSC.Patran including optional access to data from several CAD systems. Key MSC.Patran features include:

- Parametric Modeling Capabilities
- Wireframe and Solid Geometry Creation and Modification
- 2D and 3D Finite Element Mesh Generation and Editing
- Comprehensive Element Library
- Element Property Creation and Edit
- Material Property Creation and Edit
- Load and Boundary Creation and Edit
- Contact Definitions
- Model Visualization and Verification

Analysis using the MSC.FEA Solver
MSC.FEA provides a full range of engineering analysis capabilities including:

- Basic Structural Analysis
 - Static Stress / Normal Modes
 - Normal Modes
- Optional Advanced Structural Analysis Options

Postprocessing Using MSC.Patran

MSC.FEA provides a full range of capabilities for visualization and interpretation of analysis results available in MSC.Patran including:

- Results Access
 - All MSC.Nastran Results Files
- Results Visualization
 - Deformation / Contour
 - Vector / Tensor
 - Data History / Animation
 - Results Templates

MSC.FEA 2004 is available in four configurations:

- MSC.FEA 2004 Desktop
- MSC.FEA 2004 Professional
- MSC.FEA 2004 Enterprise (Special version available in the Americas and Asia Pacific regions.)
- MSC.FEA 2004 Student / Educational Edition

MSC.AFEA Package Options:

- CAD Access
 - CATDirect_V4 / IGES
 - ACIS Version 11.0 / Pro/E
 - CADD5 / I-DEAS
 - Unigraphics / Parasolid
 - VDA / STEP AP203 and AP209
- Advanced Analysis
 - Heat Transfer
 - Dynamics
 - Frequency / Harmonic Response
 - Nonlinear
 - Creep
 - Optimization
 - MSC.Nastran ADAMS Integration
 - MSC.Nastran Rotor Dynamics
 - FEA DDAM (Enterprise Package only)
- Productivity
 - CAE Solid Modeling
 - Advanced Surface Meshing
 - Materials – FEA Material Database Selection Tool with Penton's Material Selector Databank (Enterprise Package only)

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