Solution Partner

PLM

SIEMENS

MAYA SIMULATION

Leading Provider of Software Solutions and Technical Services for Digital Product Development

Thermal, Flow And Structural Simulation Services

MAYASIM.COM

Engineering Analysis
For Business Success

As mechanical engineers with broad-based knowledge and experience in thermal, flow and structural simulation, MAYA HTT offers a full spectrum of services to complement the most rigorous engineering effort.We have been called upon to support each stage of the development cycle from preliminary concept validation to detailed finite-element-based design and simulation.

We provide mechanical test planning and procedure preparation and will assist actual test campaigns and troubleshooting.We also offer software customization and development services.

Our expertise encompasses hands-on industry experience in aerospace, automotive,electronics, nuclear power and manufacturing processes.

MAYA's engineering experience

- Spans more than 25 years and several industries
- Comprises hundreds of projects
- Is relied on by top tier companies worldwide
- Encompasses all stages of product development and lifecycle

"Innovative analysis from Maya Simulation has empowered our business.

A few of our recent projects:

Aeronautics

> Boeing
Structural dynamics

> COMDEV
Fluid-structure analysis

> Goodrich
Thermal analysis

> National Defense
F-18 structural analysis

Automotive

> Automotive Lighting
Thermo-fluid, structural, dynamics

> Bayer Polymers
Thermo-fluid analysis

> Motor Coach Industries
Underhood analysis

> Siemens
FE model generation

> Visteon
Headlamp analysis

Biomedical

> Cryocath
Engineering support

> GE Medical
Ray tracing analysis

> Millenium Biologix
Thermo-fluid analysis

Civil Engineering

> Amtech
Wind tunnel simulation

> Automatic Systems
Crash analysis

> DessauSoprin
Non-linear structural analysis

> Noranda
Galvanizing process analysis

Consumer

> Entegee
CFD analysis

> North Safety
Crash analysis

> UV Pure
CFD analysis

Defense

> General Dynamics
Thermo-fluid analysis

> National Defense
Ablation analysis

> National Defense
IR signature

> Raytheon
CAE Software Development

Energy & Power

> Atomic Energy of Canada
Nuclear reactor study

> GE Hydro
Thermo-fluid analysis

> Hydro-Quebec
Thermo-fluid analysis

High Tech

> Cisco
Structural and dynamics

> Mitec
Solar heating analysis

> Motorola
Thermo-fluid analysis

> SONY
Camera cooling analysis

> Xerox Corporation
Cooling strategy investigation

Space

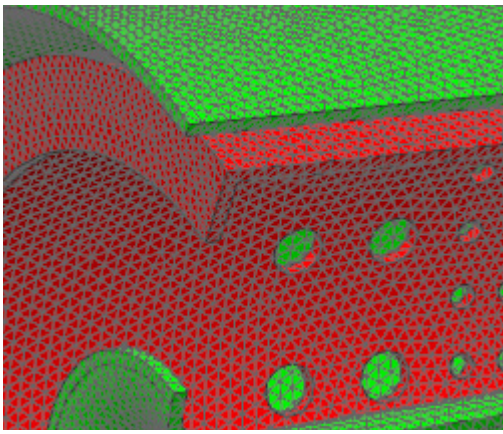
> Lockheed Martin
On-orbit thermal analysis

> Magellan
Thermal, Structural, Dynamics, Laminates

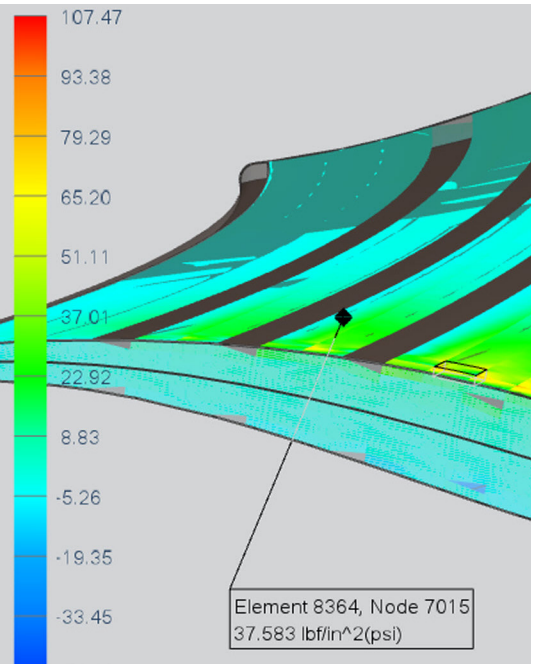
> Mitsubishi
Thermal analysis

> NASA Jet Propulsion Laboratory
Engineering support

We will help you and your team



- Conceptual design validation
- R&D efforts
- Simulation of detailed design
- Manufacturing processes analysis
- Mechanical testing execution
- Troubleshooting field or test failures
- Simulation/test correlation
- Operational product life premature defect analysis
- CAE knowledge capture
- Streamlining your CAE processes
- Custom CAE software development and integration



1. Concept evaluation
Evaluating the impact of fluid flow, heat transfer and structural stresses early in the design process will determine product viability.MAYA will perform preliminary assessment of multiple designs and assess performance and durability.

2. Design validation
Drawing on best-in-class solver capabilities, thermal, flow and structural competencies and a multi-physics approach,MAYA is able to perform a thorough simulation of your product design. Designs can be evaluated under multiple operating conditions, while taking into account environmental and materials considerations.MAYA's multidisciplinary approach provides a comprehensive design analysis, giving a clear understanding of product performance.

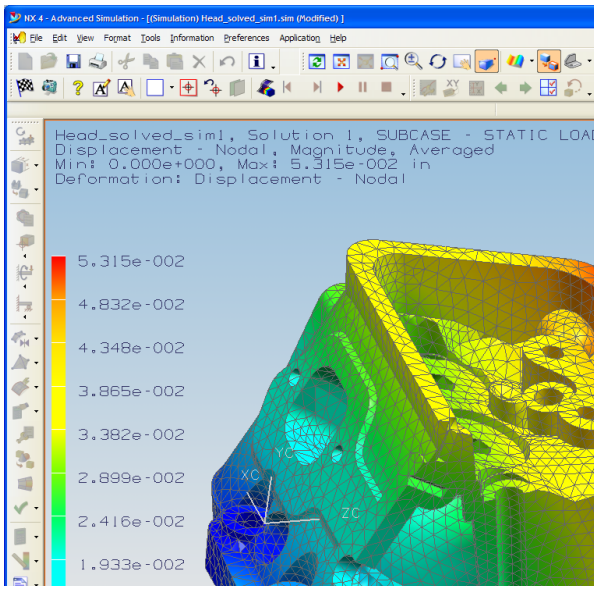
3. Physical test
Physical test can be a key component in engineering design.MAYA can be called upon to manage test planning and execution, from test article instrumentation to data processing.We verify that instrumentation conforms to specification and that it has been properly calibrated.We will help perform an array of structural and thermal tests to fully validate the unit, and correlate performance results with engineering analysis.

4. Manufacturing evaluation
MAYA can perform numerical simulation of manufacturing processes, to help you evaluate process control and production quality.We will simulate thermal and fluid effects under many operating conditions, to quickly detect process anomalies and improve overall manufacturing effectiveness.

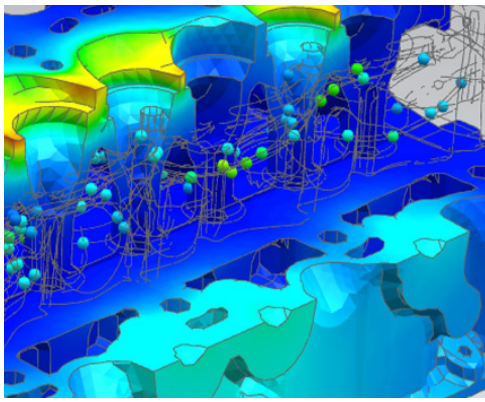
Software Development

Leverage MAYA's experience with advanced numerical algorithms and applications development to extend your CAE software or enhance processspecific CAE analysis requirements.

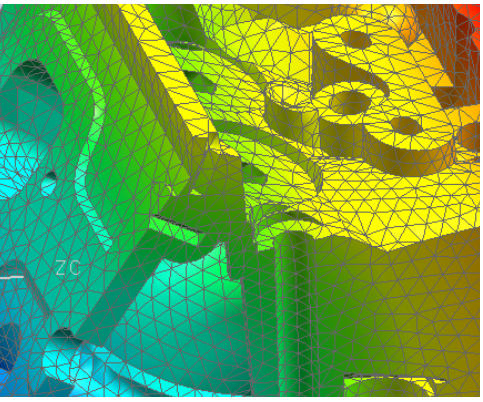
- Extensions to TMG-Thermal and TMG-Flow
- Nastran DMAP and Nastran Toolkit applications
- Custom in-house CAE applications
- MCAD interfaces and FE translators
- In-house solvers and CAE process automation
- Solvers and numerical methods



Thermal Highlights



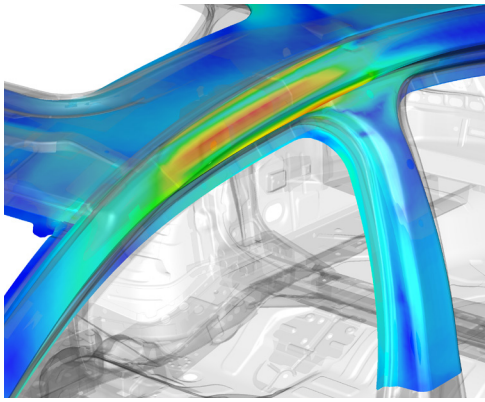
- Multi-layered and orthotropic conduction, convection and radiation
- Heat dissipation under a wide range of operating conditions, including phase change, solar and environmental heat sources
- Fast and efficient radiation calculations
- Specular reflection, absorption and transmission
- Orbital heating including solar, albedo and planet radiation calculations can be modeled for spacecraft applications



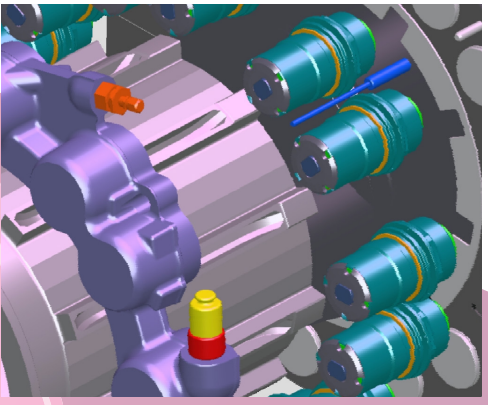
Flow Highlights

- Internal and external flow
- High speed, compressible flow and rotational flow
- Unstructured flow solver technology easily models free form and large geometries
- Leading flow solver technology to simulate moisture patterns including humidity distribution and condensation on solids

Structural Highlights



- Geometric and material nonlinearities, including contact and plasticity
- Frequency and time dependent simulation including random and harmonic base excitation
- Thermal distortion, normal modes and buckling
- Highly accurate and efficient meshes using state of the art meshing software
- Analysis of large assemblies using superelements and other reduction techniques
- Advanced post-processing tools



Physical Highlights

- Structural tests include: vibration, acoustic, static, pyroshock and modal tests
- Thermal tests include: cycle, vacuum, balance and burn-in tests
- Sine and random vibration
- FE-based notching of vibration test levels
- Modal test definition based on Nastran, NX, I-deas and custom processors determines the optimal accelerometer and exciter locations

Analysis Expertise

FLOW ANALYSIS

Call on MAYA to improve design performance by simulating and visualizing fluid flow phenomena using computational fluid dynamics (CFD).

THERMAL ANALYSIS

Rely on MAYA to accurately simulate thermal effects and help define appropriate cooling strategies within product constraints.

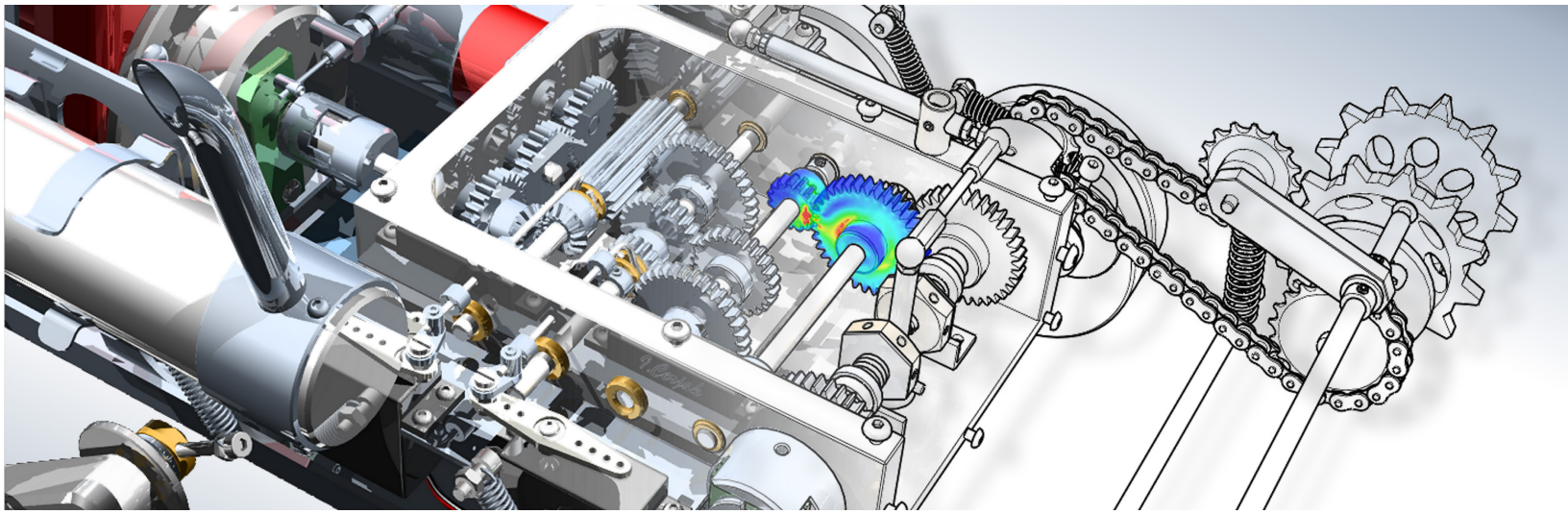
STRUCTURAL ANALYSIS

Apply MAYA's experience with Nastran, NX, I-deas and Femap to model and analyze detailed mechanical designs.

DYNAMICS ANALYSIS

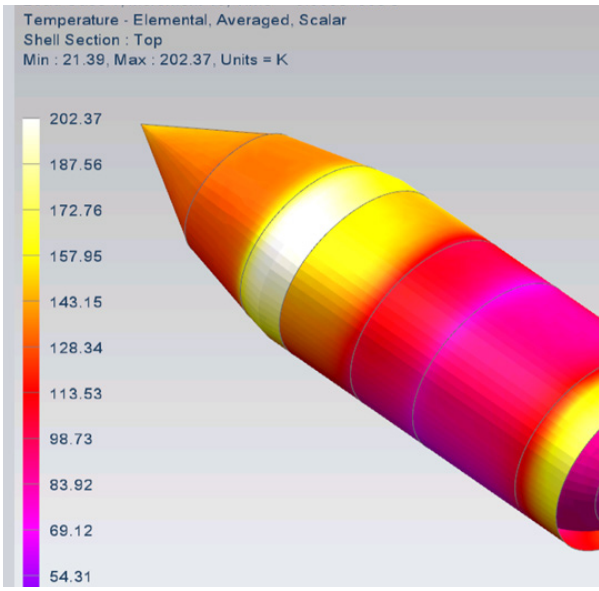
Draw on MAYA's experience with vibration, shock, and advanced dynamics simulation as well as with test data acquisition from vibration prototype testing to validate your mechanical design.

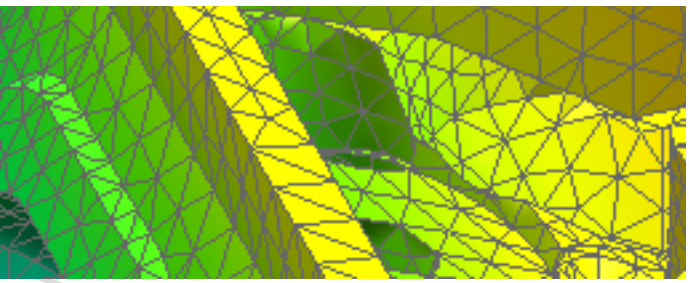
Engineering Know-How MAYA's qualified staff consists of engineers skilled in numerical simulation,many with advanced degrees and senior project management experience.With proficiency in thermal, flow and structural analysis, our engineers have built and analyzed 3D, digital models of individual components, sub-assemblies and entire structures.Drawing on a portfolio of leading thermal, flow and structural solver technology,we can be called upon to support all stages of product development, from concept to manufacturing.Our rigorous methodologies validate the most intricate designs and lead to greater design quality.With a solid foundation in engineering principles and in-depth familiarity with the leading CAD/CAE software,you can trust MAYA to bring insight and understanding to the most complex engineering effort.



Engineering Excellence
For Success

MAYA is an established provider of advanced CAE services.With more than two decades of experience and hundreds of projects to our credit,we excel at engineering analysis.Working with top tier companies across the globe,we have fostered an unparalleled expertise in thermal, flow and structural simulation that complements in-house resources and broadens engineering capabilities. Our engineers bring valuable insight to the design process, contribute to greater engineering productivity and can be trusted to enhance the product development process.





MAYA will help you

- Shorten product development cycles
- Enhance engineering performance
- Boost product quality
- Save time and money

MAYA Simulation, Engineering Software Solutions

MAYA is a leading developer of simulation CAE and DCIM software. We provide training and digital product development, analysis and testing services.

As a core Siemens PLM development partner and reseller, we deliver total solutions, customized to meet your needs.

Put our services to the test,
contact us for a free consultation today.

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