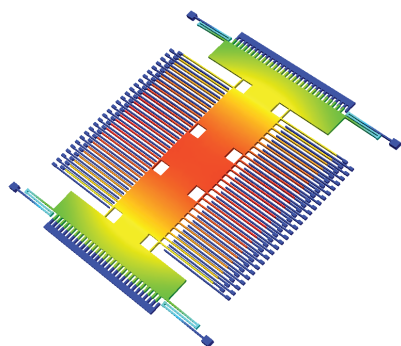


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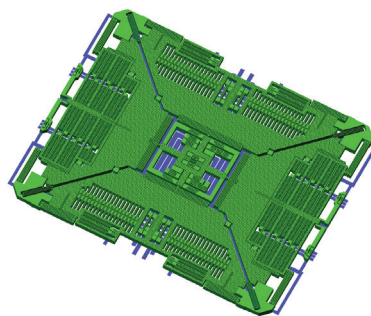
– Bring Your MEMS Concepts to Reality Faster

Accelerometers



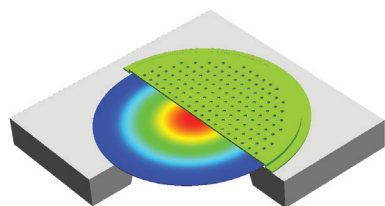
- ◆ Modal analysis
- ◆ Frequency Response
- ◆ Output Capacitance
- ◆ Pre-Stress Effects
- ◆ Zero-Offset from Package Effects
- ◆ Gas Damping

Gyroscopes



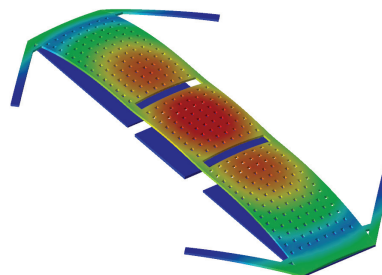
- ◆ Pull-in Voltage
- ◆ Electrostatic Drive Force
- ◆ Output Current and Capacitance
- ◆ Quadrature
- ◆ Thermo-Elastic Damping
- ◆ Anchor Losses

Microphones



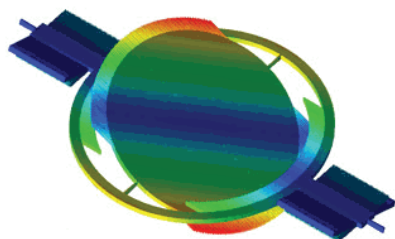
- ◆ Frequency Response
- ◆ Capacitance with backplate Perforations
- ◆ Electrostatic Spring Softening
- ◆ Pull-in Voltage
- ◆ Pre-Stress Effects
- ◆ Signal-to-Noise

RF Switches & Varactors



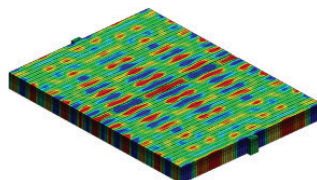
- ◆ C-V curve
- ◆ Actuation (pull-in) and Release (lift-off)
- ◆ Closed Shape
- ◆ Contact Force
- ◆ Pre-Stress Effects
- ◆ Stress Concentration
- ◆ Shock Response

Micro-Mirrors

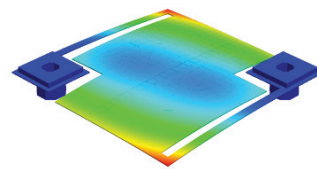


- ◆ Analog (scanning): Electro-static Drive Force & Response
- ◆ Digital Display: Actuation (pull-in) and Release (lift-off)
- ◆ Modal Analysis
- ◆ Hinge Stress
- ◆ Gas Damping

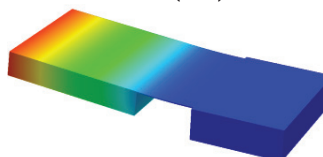
And much more...



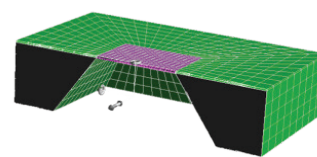
Piezoelectric (PZE) Resonators



Micro Bolometers



Energy Harvesters



Piezoelectric (PZR) Sensors

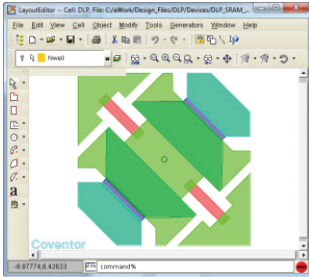
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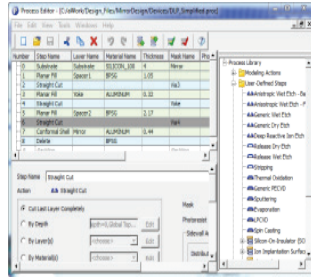
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– Bring Your MEMS Concepts to Reality Faster

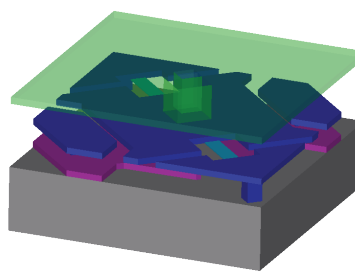
The Fastest, Easiest Design Entry for MEMS



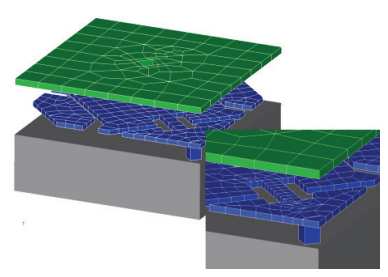
2D Layout:
All Angle and True Curves



Intuitive, Process-Driven
3D Model Builder

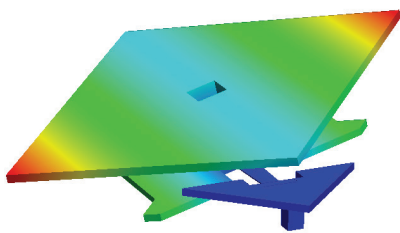


MEMS Model
Preprocessing

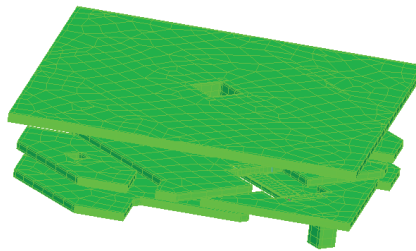


Auto Meshing,
Optimized for MEMS

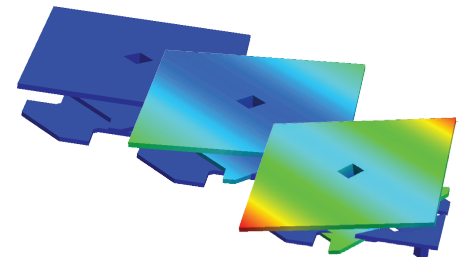
World-Class Coupled Electro-Mechanics Simulations



Finite Element (FEM)
Non-Linear Mechanics
Robust Contact Analysis

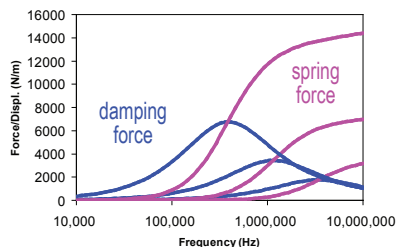


Boundary Element (BEM)
Electrostatics – No need to mesh air
*Optimized for
Multi-Core/Multi-CPU*

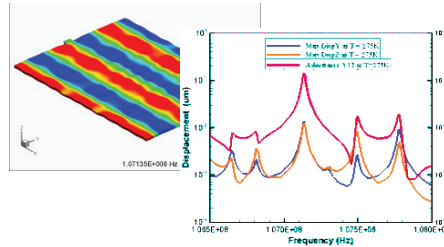


Hybrid FEM/BEM
Pull-In/Lift-Off/Harmonics
*New Intuitive Interface for Fast Setup
and New Algorithm, 5X Faster*

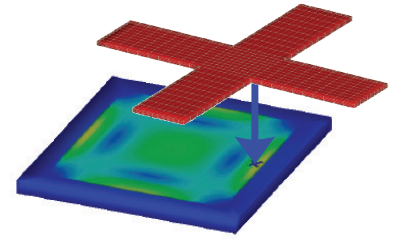
Specialty MEMS Physics Simulations



Reynolds and Stokes
Solvers for Gas Damping



Fast Modal Harmonic Analysis
for Piezo (PZE) Resonators



Piezo-Resistance (PZR)
Solver for PZR Sensors

Now 5X Faster

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