CREO SIMULATION LIVE
BETTER DESIGNS USING REAL-TIME FEEDBACK

ptc

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AGENDA

- Simulation Driven Design
- PTC/ANSYS Partnership
- Creo Simulation Live Overview and Demo
- Future Solutions

COMPANIES ARE STRIVING TO ACHIEVE:

Deeper integration of simulation throughout the development process

Deeper understanding of **product performance**

Faster ramp-up, **shorter development cycles** and **quicker time-to-market**

Reduced **design-cycle times**

Fewer prototypes and **first-time quality** at reasonable cost

Reduced warranty liability and exposure

SIMULATION DRIVEN DESIGN CHALLENGES

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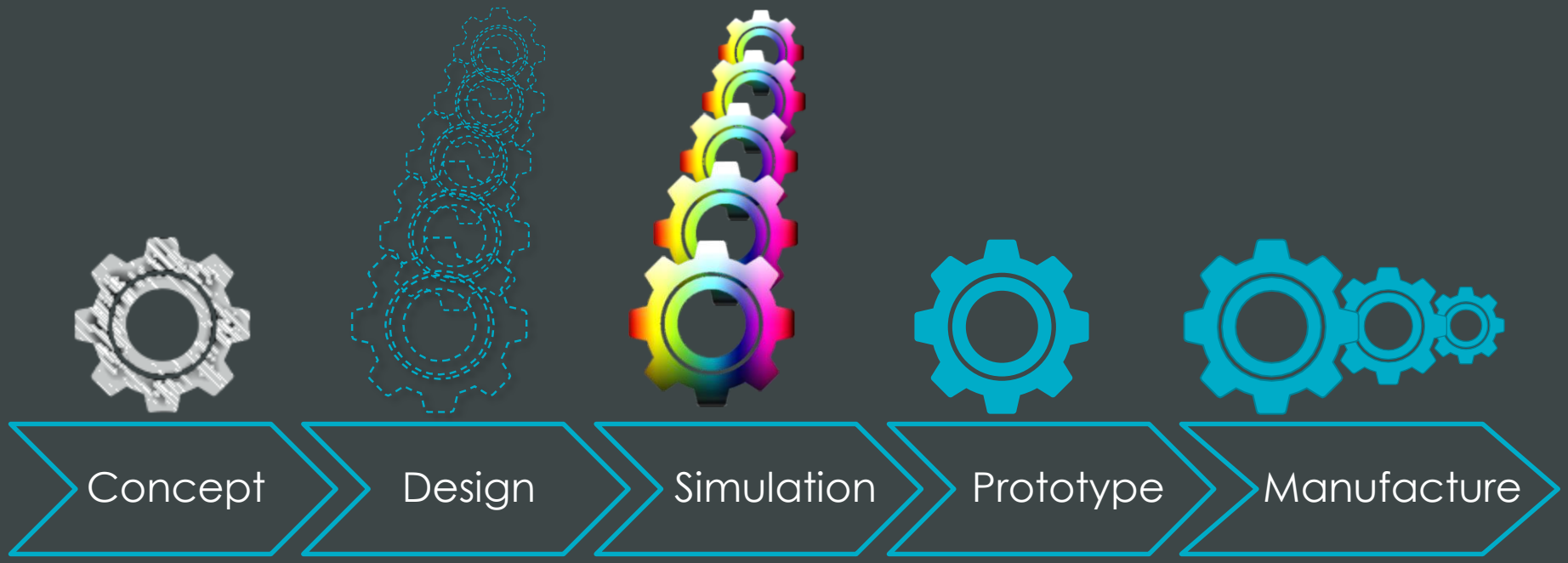


- Need to consult an expert
- Can't use the actual design model – need a simplified copy
- Design is an iterative process

PTC/ANSYS PARTNERSHIP

Revolutionize product design by removing the barriers between CAD and CAE

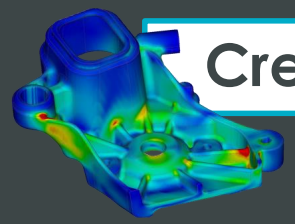
Partnership provides best and broadest portfolio of engineering simulation software

PTC and ANSYS will put the power of gold-standard simulation at the fingertips of the Design Engineer

PTC and ANSYS are working together to embed the ANSYS Discovery simulation engines natively within the PTC Creo Parametric environment

TRUE SIMULATION DRIVEN DESIGN

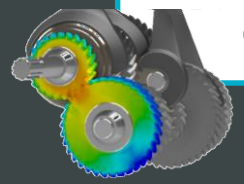
High Speed



Creo Simulation Live

Instantaneous & interactive guidance for concept and detailed design

High Fidelity



Creo Simulation

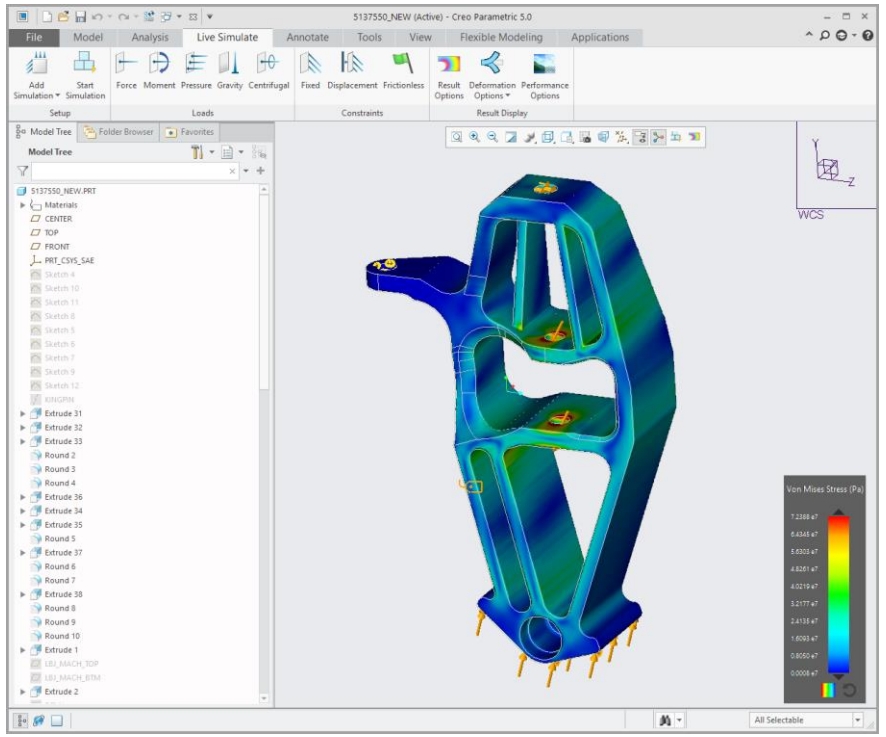
High-fidelity, high-accuracy simulation for design refinement and validation

CREO SIMULATION LIVE POWERED BY ANSYS

Creo Simulation Live offers a new paradigm in 3D design exploration, bringing real-time simulation into the hands of every engineer, fully integrated into Creo Parametric

Creo Simulation Live Delivers:

- **Speed** – Instantaneous simulation experience for parts and assemblies
- **Ease of use** – Run 1st simulation in minutes
- **Geometry enabled** – Easily edit or create features while the analysis is running
- **Interactive** – Analysis results update dynamically as user makes geometry modification



Capabilities include:

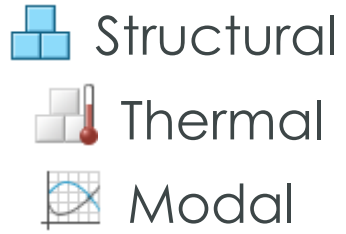
Structural Thermal Modal

DEMO:

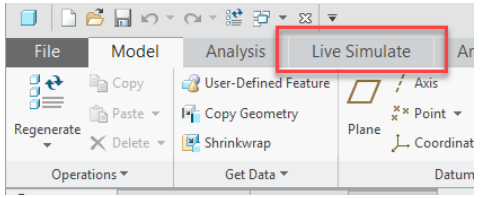
CREO SIMULATION LIVE
POWERED BY ANSYS

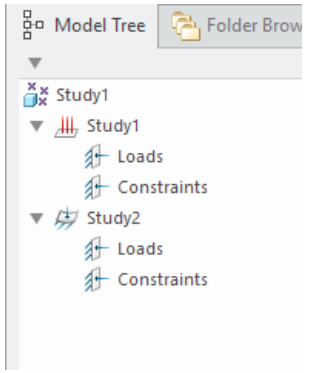
CREO SIMULATION LIVE: CAPABILITIES

- **Powerful linear solver**
  - Rapidly define and perform **linear analysis for parts and assemblies**
    - Structural Simulation
    - Thermal Simulation
    - Modal Simulation
  - **Automatic meshing algorithm** removing the need to manually mesh the model
  - **Automatically result convergence** instantaneous without the need to simplify the model



- **Not a separate application**
  - **Run seamlessly in the modeling environment** of Creo Parametric for both parts and assemblies
  - A new **Simulation Live** tab that will define the setup details for Creo Simulation Live
  - A new **Simulation Tree** will be available listing all the defined simulations created for the model
  - **Create multiple simulations** per model which will be saved to the model
    - Only one simulation can be active at one time and do not influence other simulations
    - Toggle between simulations from the Simulation Tree

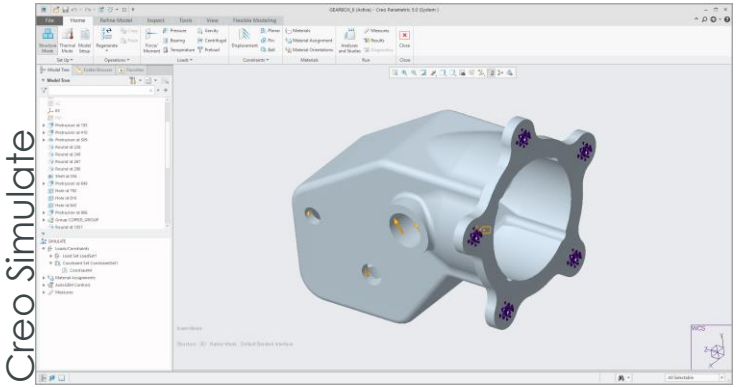




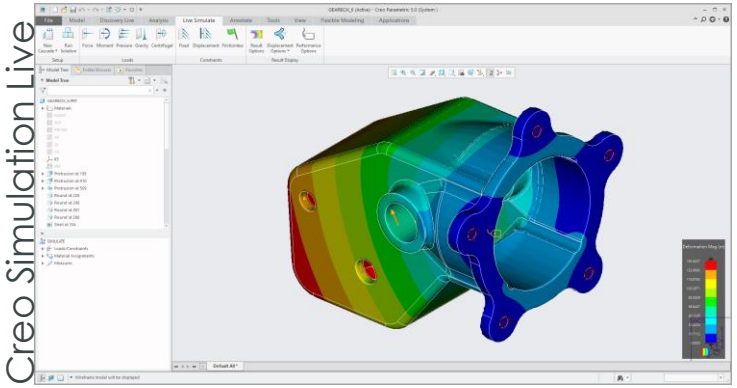
CREO SIMULATION LIVE: CAPABILITIES

- **Creo Parametric Modes**
  - All assemblies will be defined as **bonded assemblies** and analyses will be performed on the Top-level only
  - Analysis solver runs **continuously in the background** and provides updated results as user makes changes to their design
  - **Leverage analysis created in Creo Simulate** in Creo Simulation Live and vice versa
  - Creo Simulation Live to **work seamlessly with Creo Design Exploration**

Creo Simulate

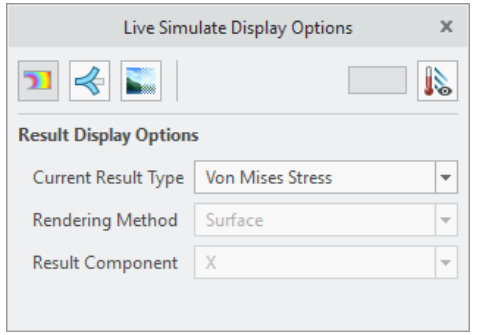


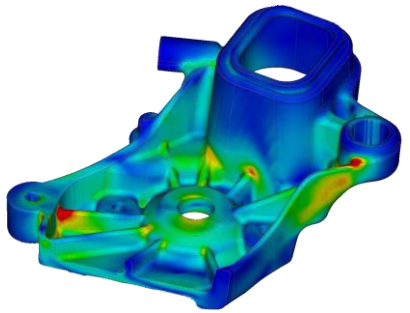
Creo Simulation Live

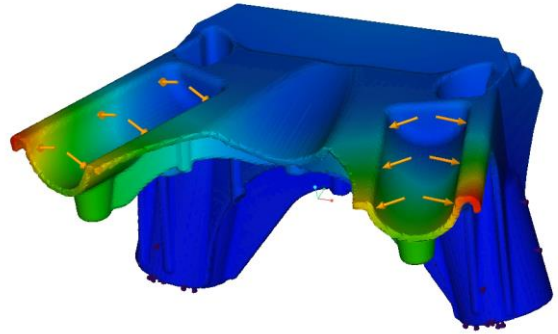


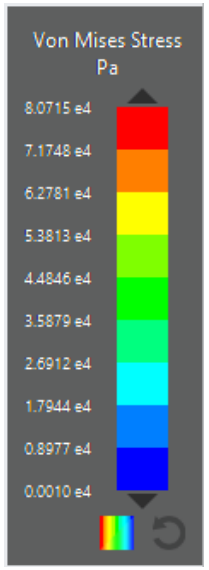
CREO SIMULATION LIVE: CAPABILITIES

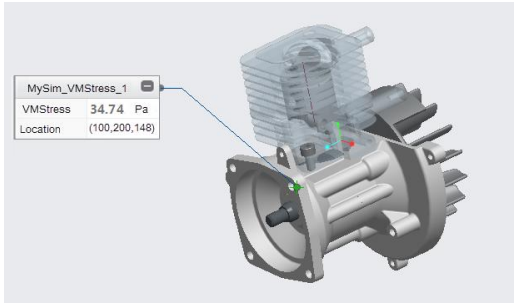
- **Interactive Results**
  - Access result **display options** from the Simulation Live tab or in-graphics toolbar (all modes)
  - Change the display results based on the analysis type
    - **Structural** – Deformation, Von Mises Stress, Principle Stress, etc
    - **Thermal** – Temperature, Heat Flux
    - **Modal** - Deformation, Von Mises Stress, Principle Stress, etc
  - Change the result rendering mode for simulation
    - Surface
    - Iso-Surfaces
    - Min/Max values
  - **Animate the deformation** of the model and control the speed and scale
  - Analysis legend will be displayed when results are shown
    - Change the scale of the legend to help interrogate the model
    - Change the legend units based on their needs
  - Query the model via **dynamic query or persistent probes**
  - Highlight and annotate the min/max areas of the model in the graphics window
  - Export results to a **HTML report** for downstream use











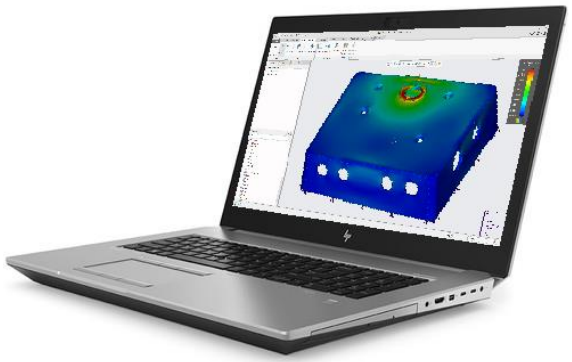
HARDWARE REQUIREMENT

- Creo Simulation Live requires a system with a **NVIDIA CUDA graphics card**
  - **Minimum 4 GB of RAM** or for optimal performance have 8 GB+
  - PTC will offer a **Hardware Utility** downloadable from ptc.com to check system requirements
- **Supported systems** for Creo from various hardware vendors can be found on the **Platform Support** page on ptc.com
- Example of supported systems for Creo Simulation Live with NVIDIA CUDA-Enabled cards

Dell Precision 7730

NVIDIA Quadro P4200

GPU Memory: 8 GB GDDR5



HP Zbook 15 G5

NVIDIA Quadro P2000

GPU Memory: 5 GB GDDR5

Lenovo ThinkStation P920

NVIDIA Quadro P4000

GPU Memory: 8 GB GDDR5

CREO 7.0
LOOKING AHEAD…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