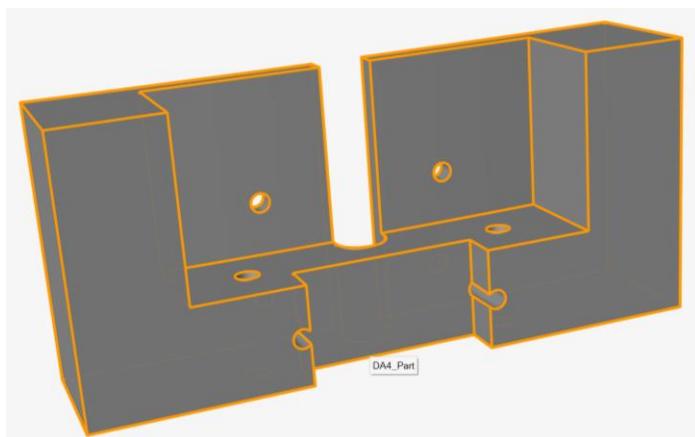


# ME-653-Design for Additive Manufacturing

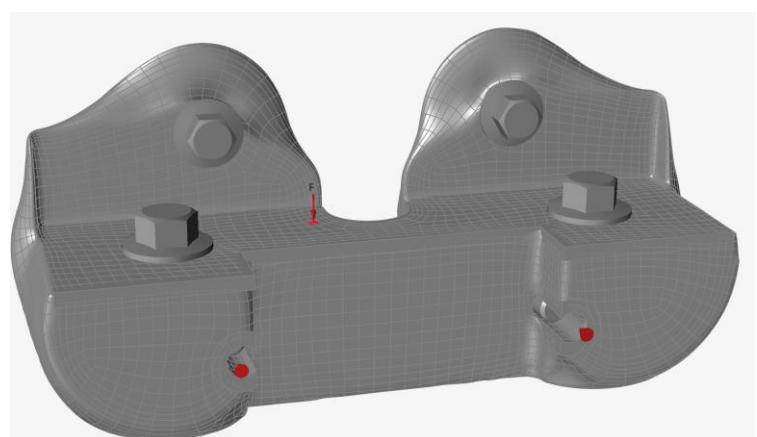
- Kalpak H

Part Description	Original	Topology-Optimized	Lattice- Design
Weight	440.87 grams	165.2 grams	90.4 grams
Maximum Stress	47.91MPa	5.875MPa	57.19MPa
Displacement	$1.077 \times 10^{-3}$	$2.712 \times 10^{-4}$	$1.69 \times 10^{-2}$
Factor of Safety	4.488	3.659	3.75

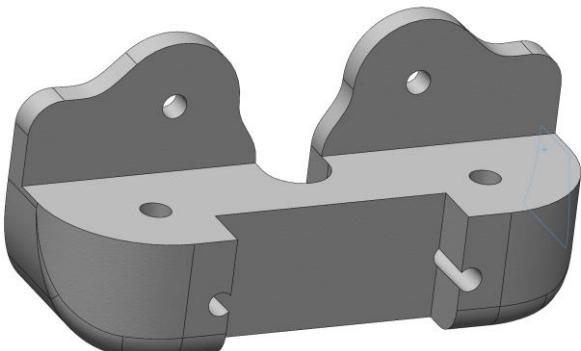
- Eliminating all components that don't perform engineering functions.
- Improving the part's functionality through optimization.
- Decreased the minimum wall thickness.
  
- Added a lattice design to the entire design area.



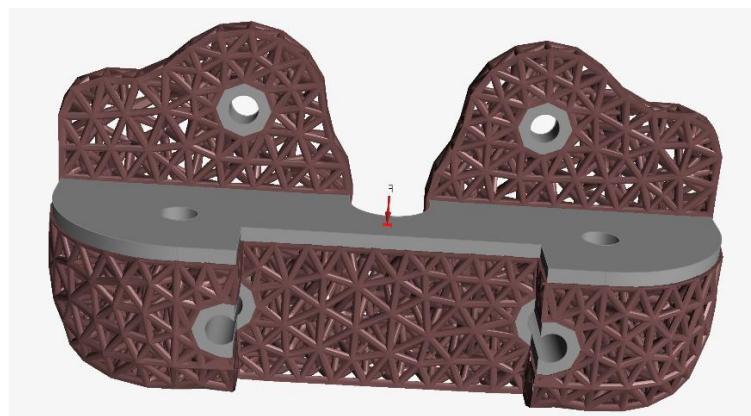
Original



Optimized

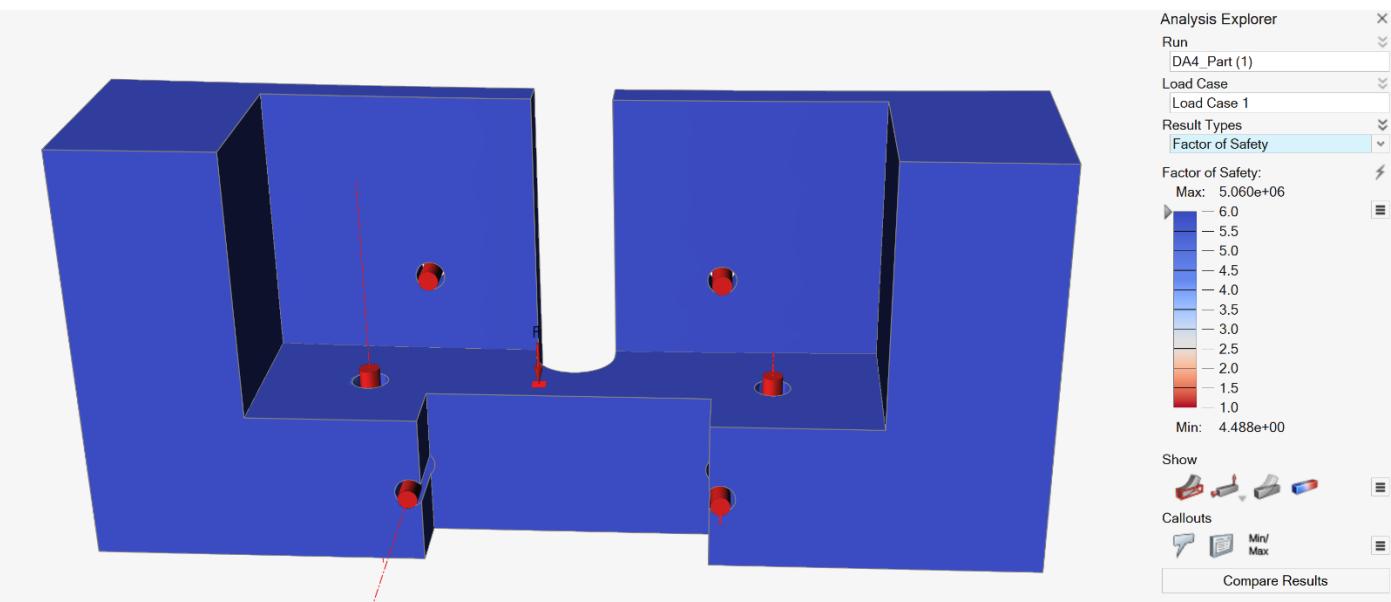
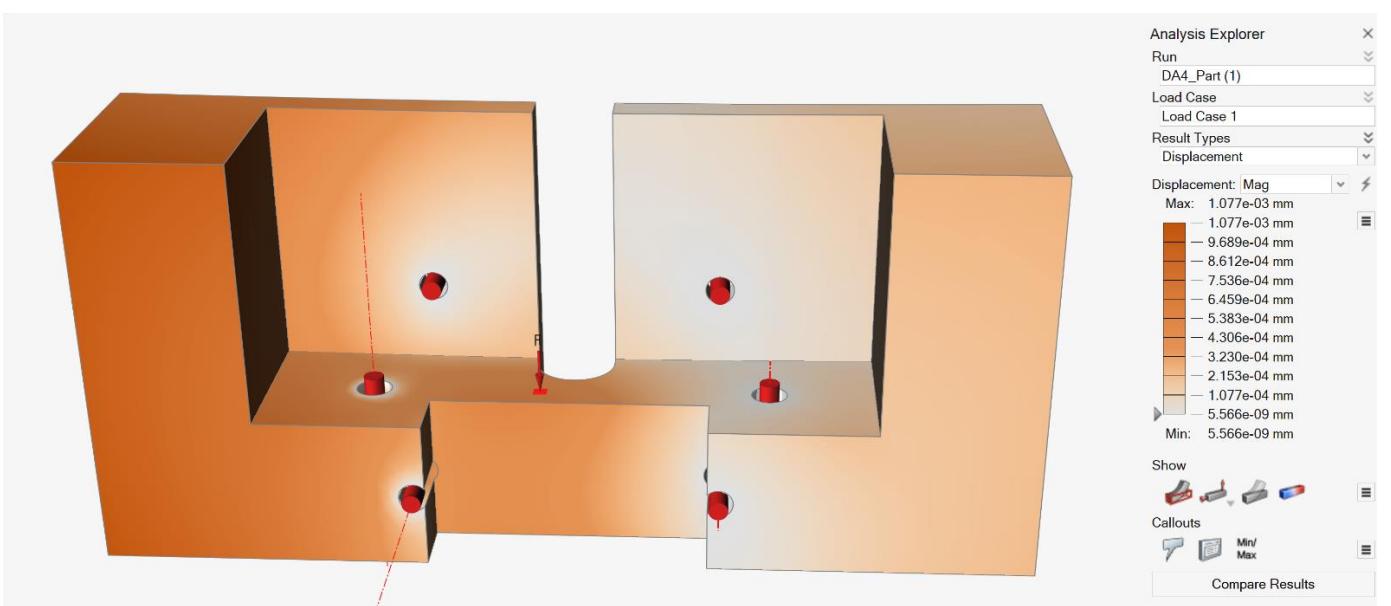
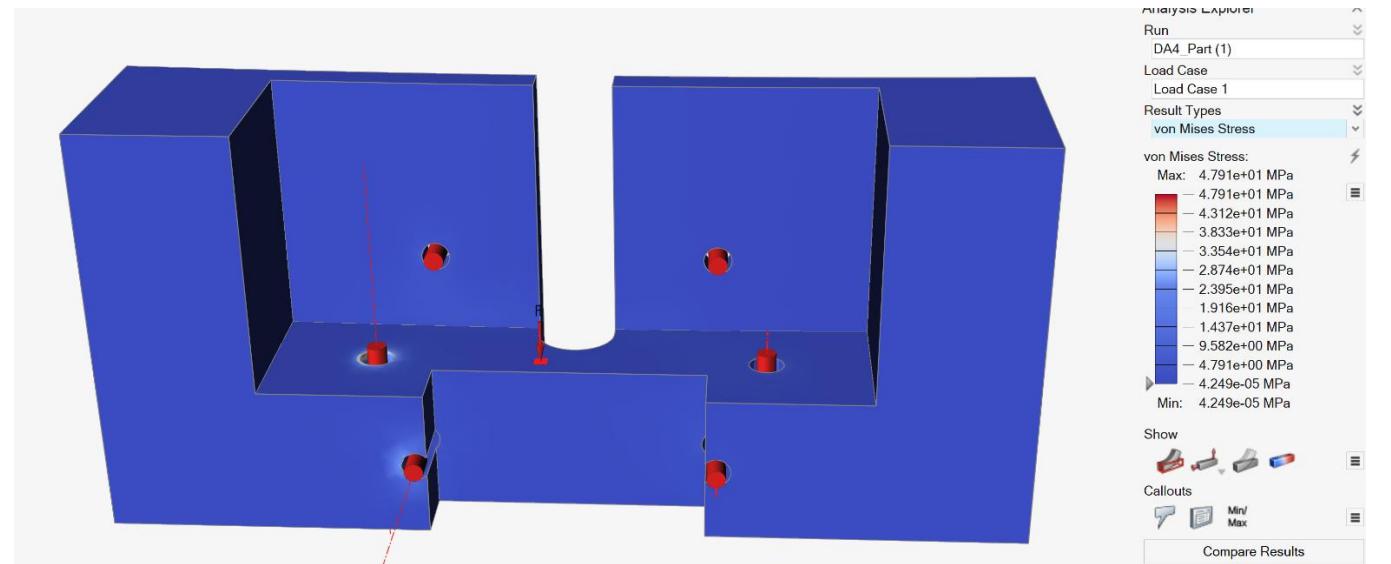


Redesign Envelope

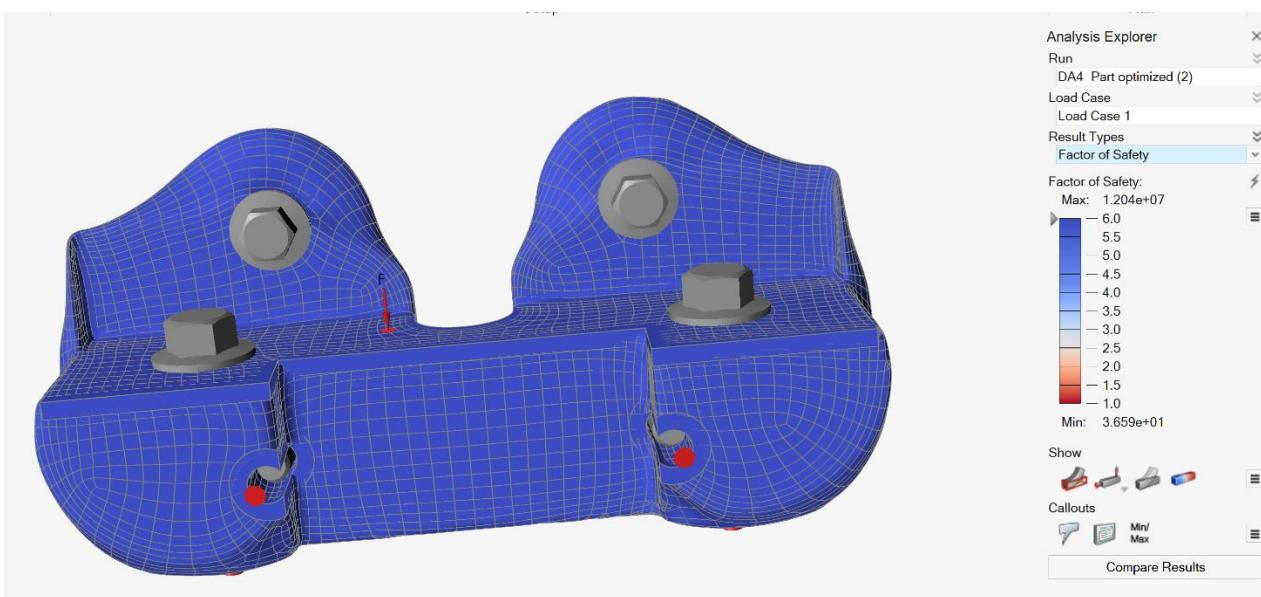
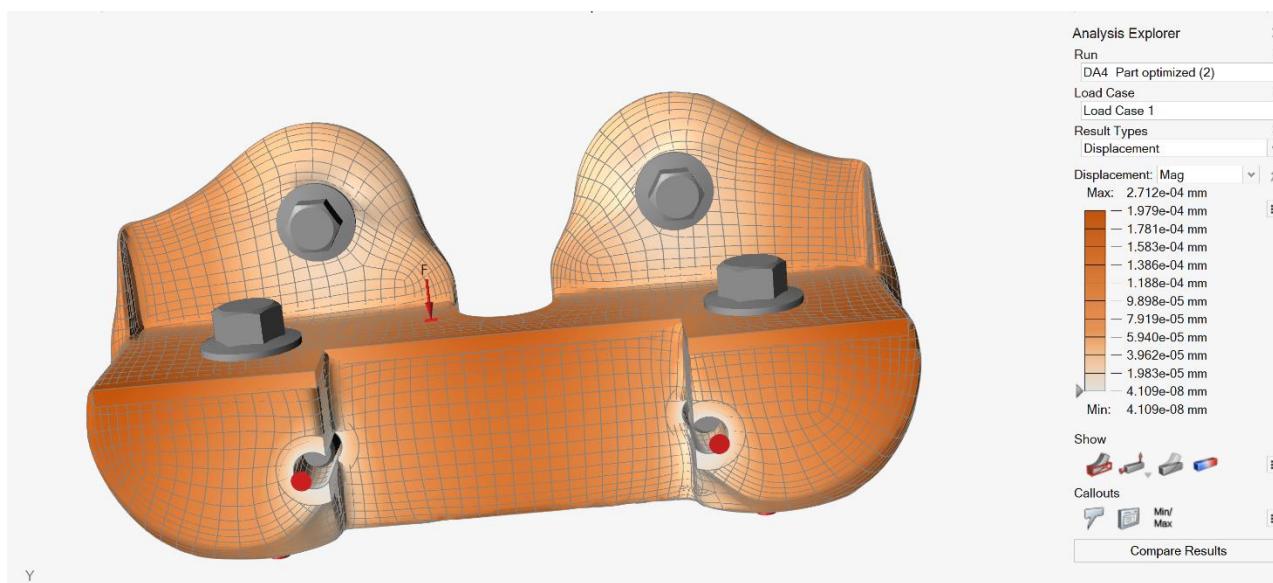
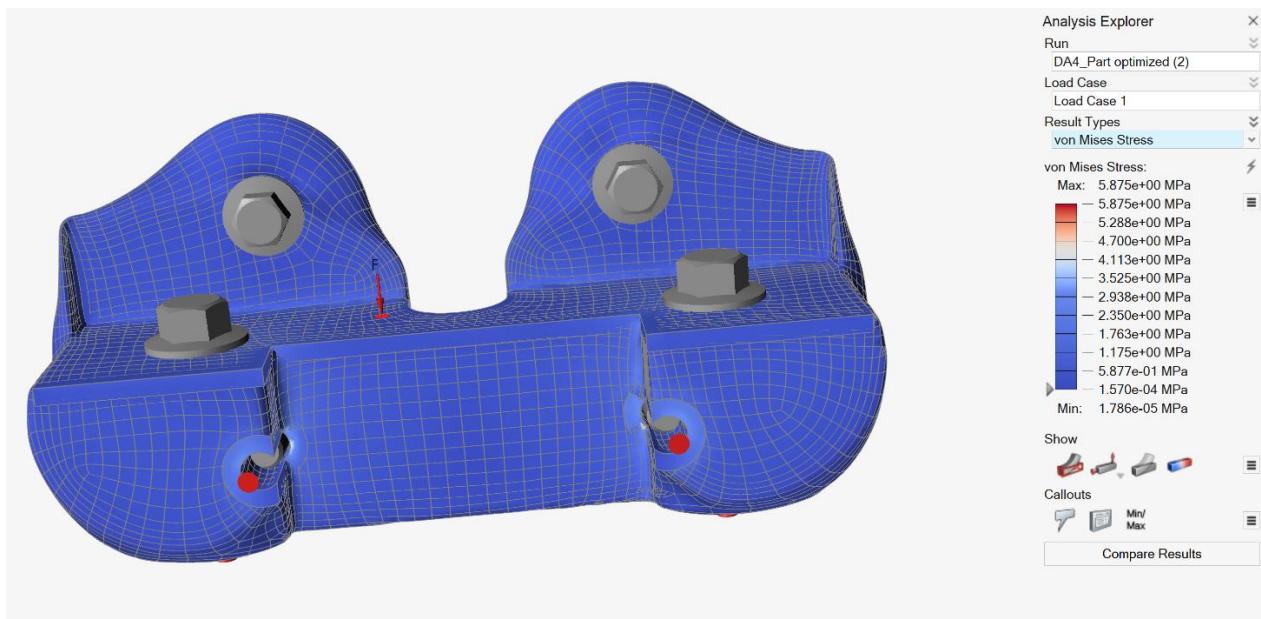


Lattice-Optimized Redesign

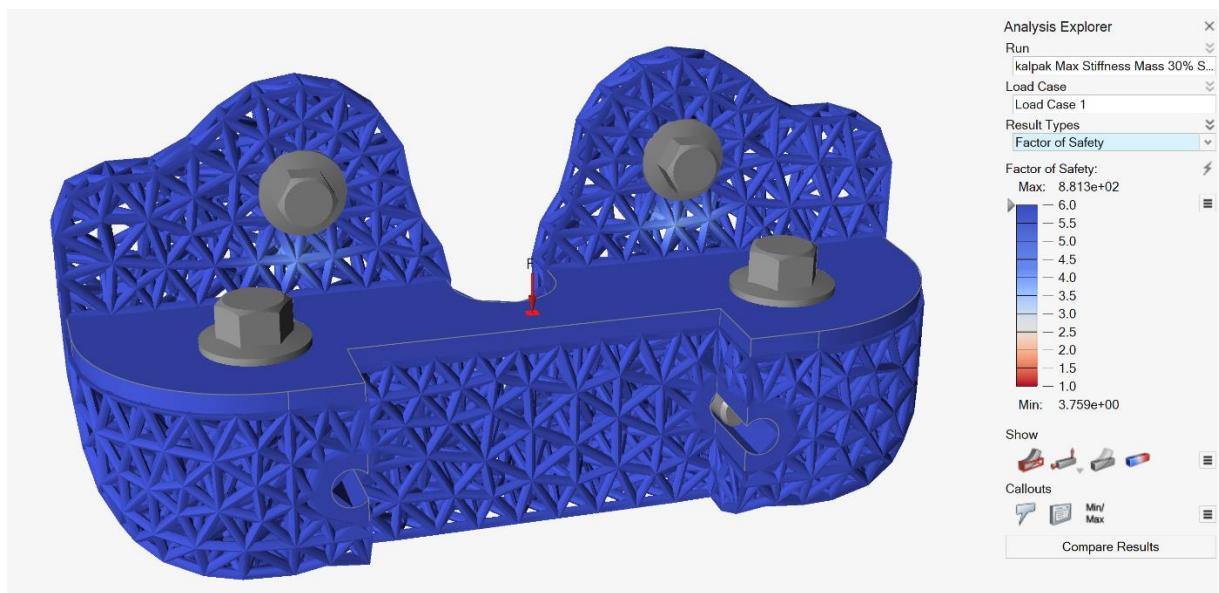
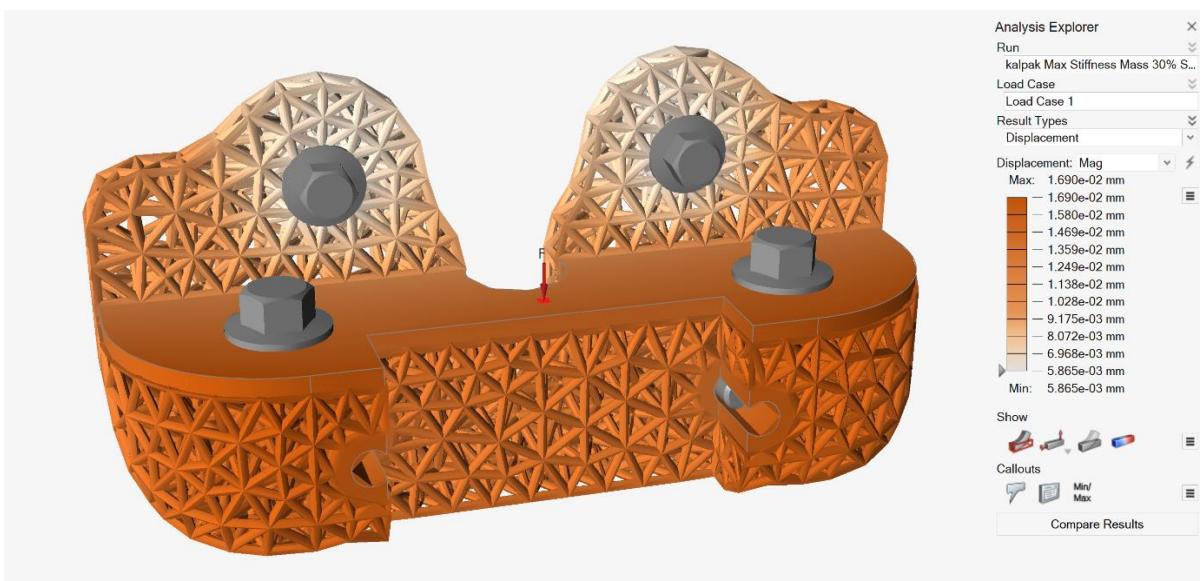
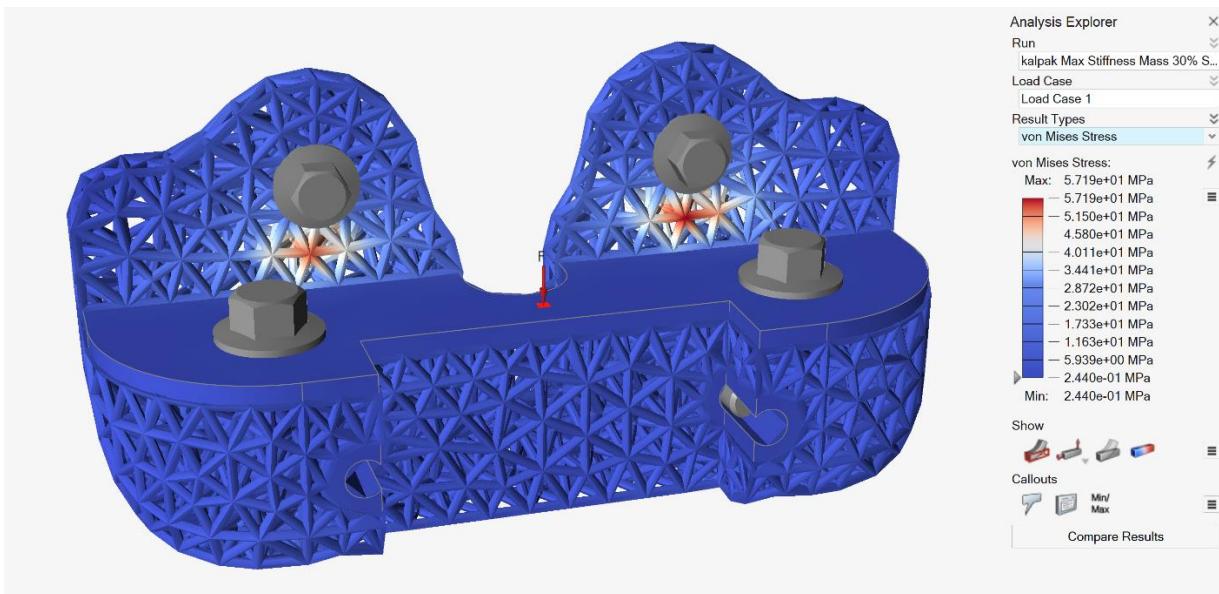
## Original Model Bracket Analysis



## Topology Optimized Bracket



## Lattice-Optimized on Redesigned Bracket



## Redesigning on Lattice-Optimized Bracket

