

**IMPROVING DESIGN OF 3D PRINTED
CIRCUIT BOX FOR SPACE APPLICATIONS
USING POWER OF THE PORTFOLIO**

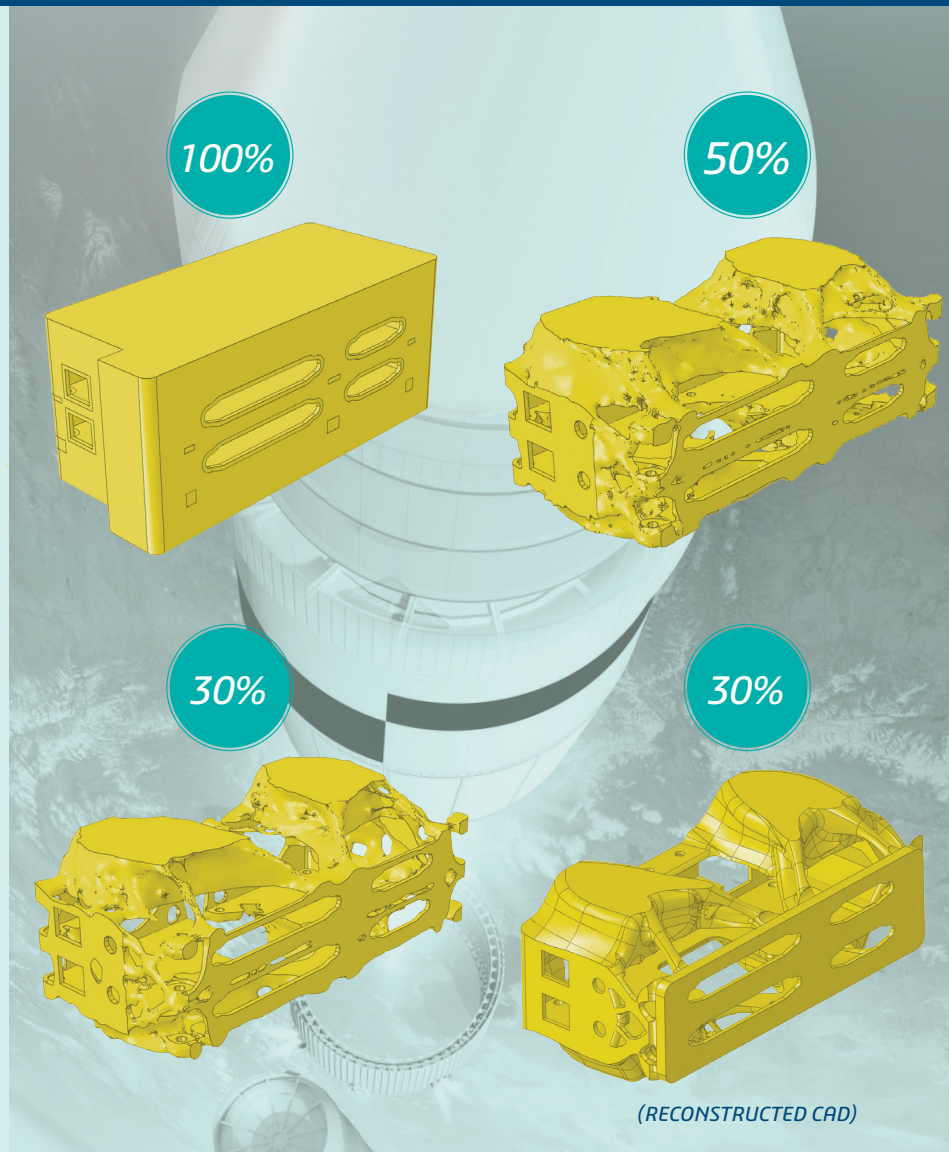
With additive manufacturing, the design is not constrained by traditional manufacturing requirements. Nonparametric optimization with Tosca technologies can be used to produce functional designs with the least amount of material.

**\$10,000
COST**

to put 1lb payload into Earth's orbit¹

**10s
OF CIRCUIT BOXES**
in one launch

**30%
WEIGHT
REDUCTION**
of original design



¹Source: NASA: http://www.nasa.gov/centers/marshall/news/background/facts/astp.html_prt.htm
Rocket heading into orbit with payload—Image Credit: NASA.
This work was completed in partnership with Stratasys.

**THE BENEFITS OF
REALISTIC SIMULATION**

Optimize the design:

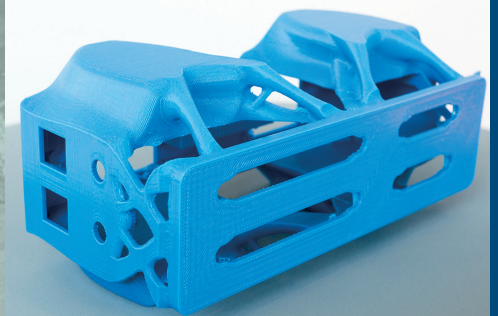
Produces a functional design of the circuit box to be printed using Fusion Deposition Modeling (FDM)

Reduce mass:

Minimizes the mass of the circuit box

Reduction of overall print cost:

Minimal changes in the print time



LEARN MORE

www.3ds.com/products-services/simulia/products/tosca