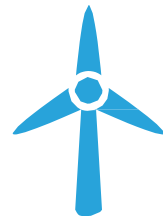


Accelerate integration of Additive Manufacturing while controlling implementation costs.

DigitalClone for Additive Manufacturing (DC-AM)

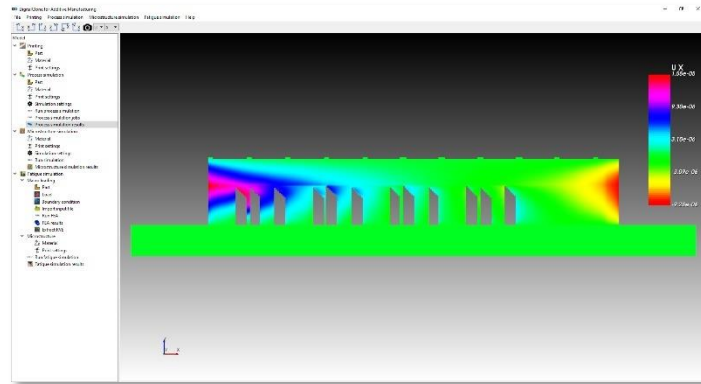
Defining the state-of-the-art, DigitalClone for Additive Manufacturing (DC-AM) integrates a suite of metal additive manufacturing modeling and simulation capabilities for comprehensive design and analysis support with seamless interoperability.

DC-AM promotes adoption of AM in safety-critical industries by providing unprecedented insight into the relationship between build conditions and the characteristics of the final part while enabling reduction in time and cost required to qualify parts and processes.



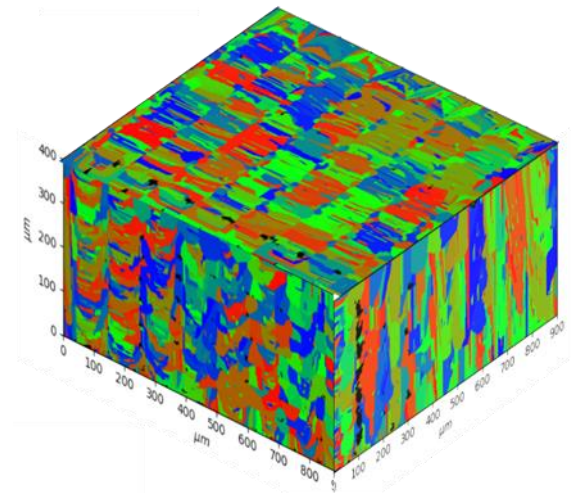
PROCESS MODELING

Critical to successfully building a part with metal AM is selection of the right set of process parameters for the target material and machine. The Process Modeling feature of DC-AM gives users a highly efficient computational environment in which to analyze the residual stresses in a part imparted by the build process configuration as well as the resulting distortion in the part. The process is finely configurable, enabling calibration for specialization down to a specific machine.



MICROSTRUCTURE MODELING

Building on Sentient's extensive history in computational modeling of crystalline material microstructures, the Microstructure Modeling feature of DC-AM leverages the thermal history computed during Process Modeling to predict the microstructure, including the grain structure and both lack-of-fusion and keyhole porosity, of parts built with AM.



PERFORMANCE MODELING

DC-AM integrates Sentient's game-changing, proprietary approach to predicting onset fatigue cracks based on microstructure-level models of damage initiation and early growth. Weibull analysis utilities are built into the software for easy results interpretation and comparison. This gives users a physics-based method to virtually assess the impact to reliability of choices of:

- Loading Spectrum
- Macro-geometry
- Micro-geometry
- Residual Stress
- Material Type
- Material Quality
- Heat Treatment
- Surface Roughness

