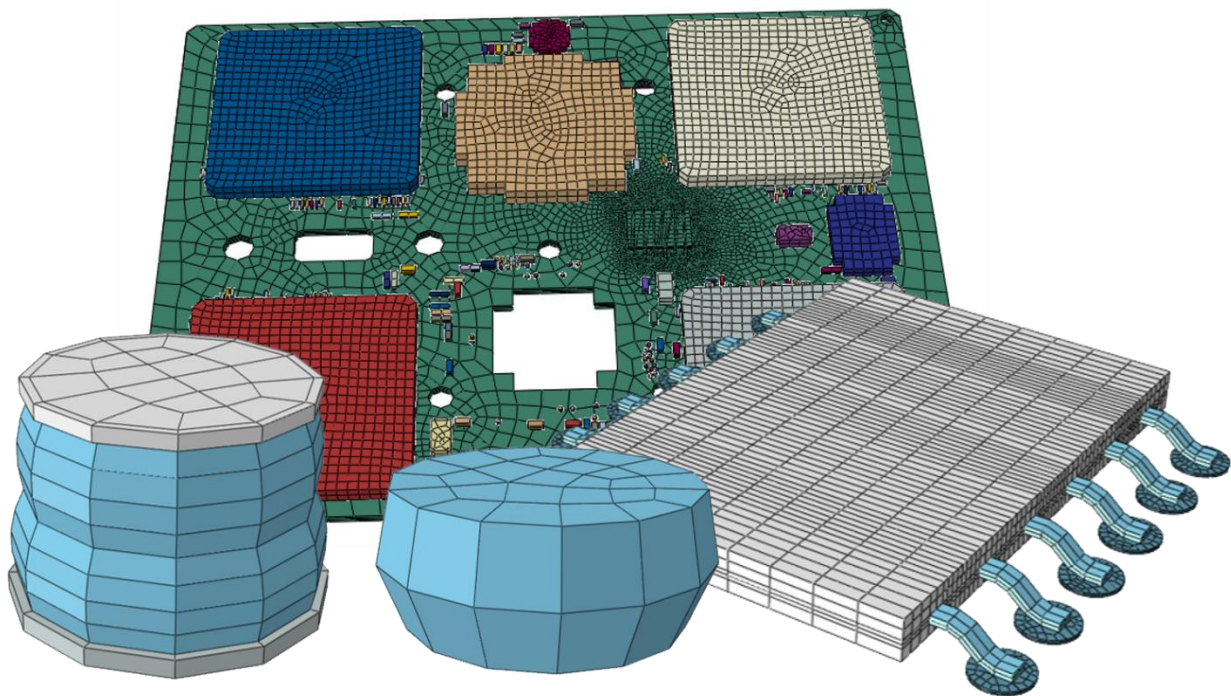


Abaqus Extension for Printed Circuit Boards

This application brief describes the Abaqus extension QustomPCB which provides the capability of building 3D PCB simulations within the Abaqus environment. The tool automates the reading of circuit board layout files and the building of the board, cutouts and components on the top and bottom of the board. Additionally, QustomPCB contains advanced tools to generate leads and solder balls onto components for very detailed circuit board analyses



Over the years Dassault Systemes has developed extensive capabilities to model the complexities of circuits boards. This tool provides a platform to easily read in the board files, create the geometry, and mesh to PCB model. Then the advanced capabilities of Abaqus can be applied to simulate the many scenarios that need to be considered when designing and analyzing printed circuit boards.

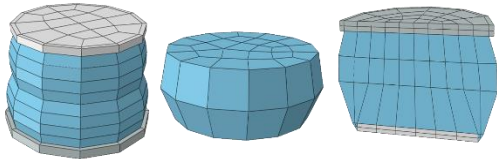
Abaqus Extension for PCB Simulations

Board and Component Import

- The board, components, and component instances are imported through the IDF format
- Components are imported onto the top and bottom of board and meshed with hex elements
- Components may be excluded from the model creation by volume size

Solder Balls

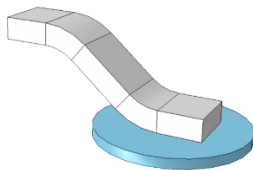
- A library of round, SMD, MD, square solder, and user-defined balls are supported.



- Solder balls can be geometry based or orphan-mesh based to improve generation performance

Leads

- A built-in Gold-wing lead is supported, which may include a round and square pad, as well as, solder between the lead and pad or lead and board



- A user-defined lead is supported. User may generate an arbitrary lead in Abaqus/CAE, then QustomPCB manages the placement along components and the merging or tying to the board and component

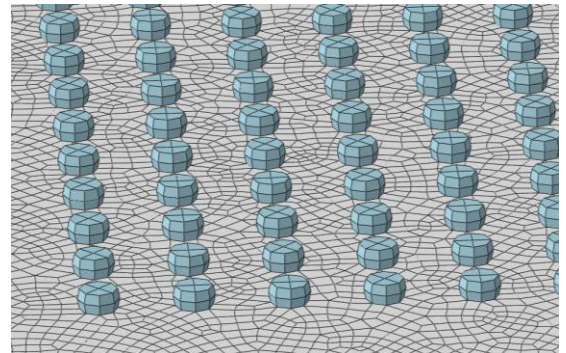
Cutouts, Holes

- Cutouts are imported from the board layout files and automatically generated.

- Customized cutouts of any shape can be generated in the board or a component
- Drill holes read from the board layout can be filtered by diameter

Meshing Controls

- Boards can be meshed with hex or tet elements
- The number of elements through the board and element size in the plane are supported
- Partitions on the board around individual components can be easily created to control mesh density
- All solder ball types can be meshed with hex or tet element and many mesh controls are available
- Leads can be meshed with hex, except in the case where the solder is modeled.



For More Information

Please visit the QustomApps.com website for more details or contact.

Support for QustomPCB is provided by QustomApps, LLC. Support issues may be sent to support@QustomApps.com.