

# ANSYS Q3D Extractor

ANSYS simulation technology enables you to predict with confidence that your products will thrive in the real world. Customers trust our software to help ensure the integrity of their products and drive business success through innovation.

## Parasitic extraction tool for electronics design

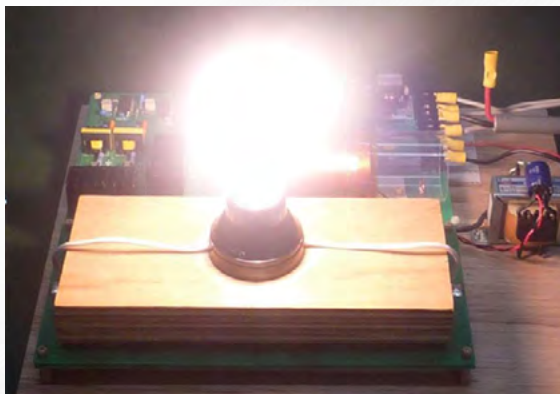
Calculates the parasitic parameters of frequency-dependent resistance, inductance, capacitance and conductance (RLCG) for electronic products.

## 3-D solid modeling

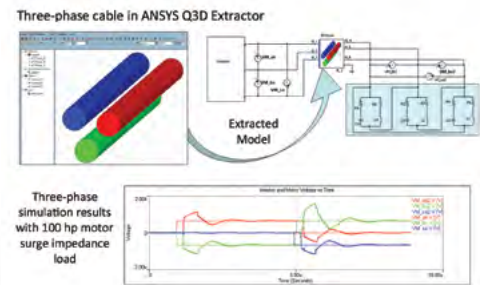
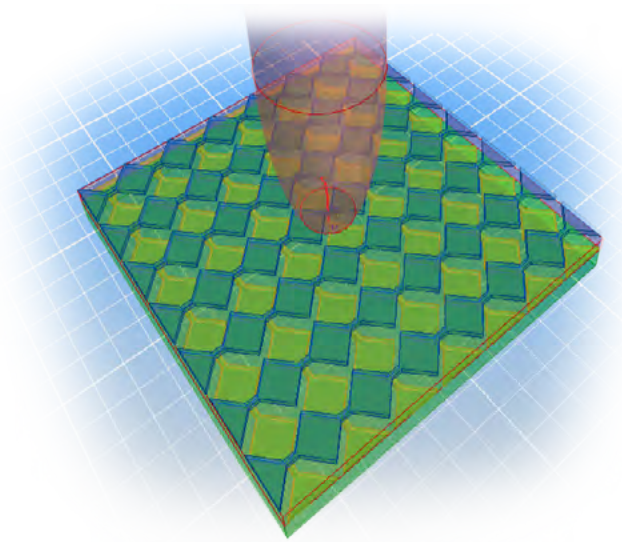
A full-featured 3-D solid modeling tool can import or create arbitrary 3-D electronic structures, such as connectors, vias, wire bonds, solder balls, signal traces, and power and ground planes.

## Power- and signal-integrity analysis

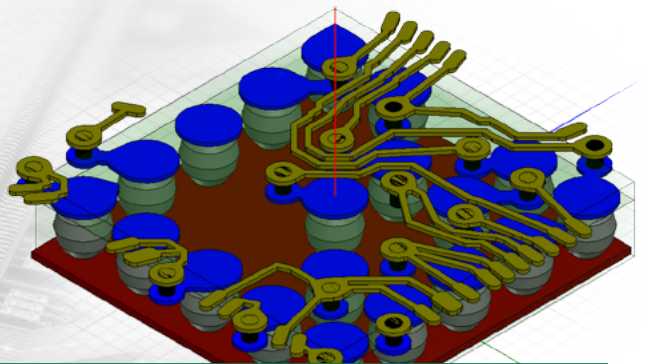
Apply extracted data in studying crosstalk, ground bounce, interconnect delays and ringing, as well as to understand performance of high-speed electronic designs – such as multi-layer printed circuit boards, advanced electronic packages and 3-D on-chip passive components. Review the per bump R, L, G, & C parasitics of a package or die along with per cell R, L, G, & C of a Touch Panel/Screen.



Takenaka Corporation used Q3D Extractor to determine the capacitance between electrodes in wireless power supply systems that are embedded in the walls and floors of buildings.



CADFEEM simulated a three-phase cable in ANSYS Q3D Extractor embedded in ANSYS SImplorer to analyze traveling waves, surge voltage and associated parasitic effects in a wind turbine generator.



Q3D Extractor is ideal for designing advanced electronics packages and connectors used in high-speed electronic equipment or high-power bus bars and power converter components used in electrical power distribution, power electronics and electric drive systems.

## Solver Technology

- Quasi-static 3D electromagnetic field analysis using Method of Moments accelerated by Fast Multipole Method
- DCRL, ACRL & CG Solver
- Quasi-static 2D electromagnetic field analysis using Finite Element Method

## Extraction Types

- IC Packaging RLCG IBIS Extraction for Signals & Power
- Touch panel RLCG Unit Cell Extraction
- Bus Bar RLCG Extraction
- Power Inverter & Converter Component Extraction
- Specialized Thin Plane Solver for Touch Panel Extraction

## Meshing Technology

- Automatic, Adaptive Mesh Refinement

## Automation

- SPICE Equivalent Modeling Export
- 2D Transmission Line Modeling Toolkit
- 2D Cable Modeling Toolkit
- 3D Component Library
- Macro-modeling (Network Data Explorer)

## High Performance Computing

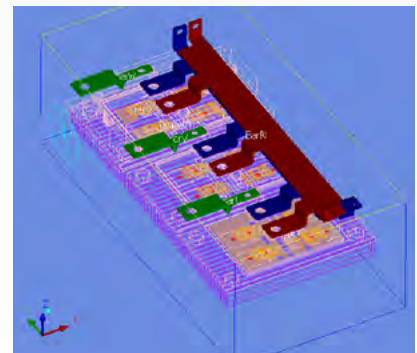
- HPC Acceleration for DCRL, ACRL, and CG

## Multiphysics

- DCRL & ACRL Joule Heating Analysis with Icepak

### ANSYS Multiphysics solutions

help cross-functional engineering organizations predict the performance of complex products influenced by multiple physics and improve their designs through simulations of the interactions between physics.



Engineers used ANSYS Q3D Extractor for parasitic extraction and ANSYS Icepak for thermal characterization of the power electronics of an electric drive system PCB.

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