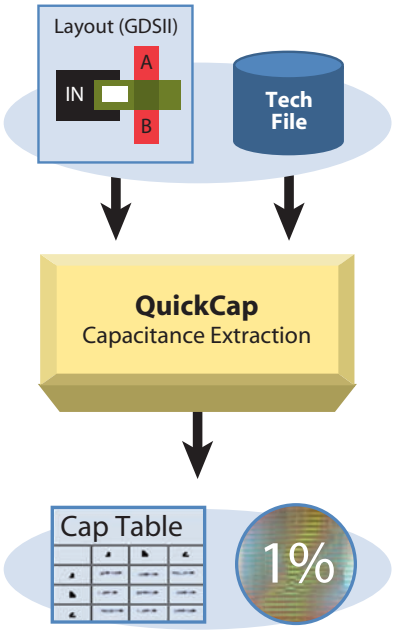
MAGMA DESIGN AUTOMATION

QuickCap®

- The gold-standard reference for accurate parasitic capacitance.
- Reflects true silicon by using a statistical extractor with a unique random-walk algorithm that is proven to be within 1 to 3 percent of silicon.
- Provides unique dial-in accuracy by reporting accuracy for each net and enables memory-efficient accuracy-versus-runtime tradeoffs.

QuickCap is the gold-standard 3D capacitance extractor for integrated circuits. It is used by most of the world's major silicon manufacturers for accurate parasitic extraction. Electronic design automation (EDA) vendors correlate their extraction results to QuickCap and use it for library generation as well as for final design correlation.



For high-speed nanometer designs, fast, accurate extraction is needed. Traditional 3D field solvers are extremely slow and can't handle the complex structures of nanometer process nodes. QuickCap, the gold standard for capacitance extraction, provides the most accurate silicon correlation and Layout Parameter Extraction (LPE) along with fast turnaround time.

QuickCap provides the highest quality of results for the analysis of small detailed structures and the verification of tens of thousands of critical nets in a block or full chip. QuickCap computes self capacitance, coupling capacitance and distributed capacitance.

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Powerful Geometry Processor and Extractor

For extracting layout parasitic capacitance values with QuickCap, the 2D layout data is translated into 3D representation with the gds2cap program. The gds2cap program includes a powerful and versatile polygon-processing engine that handles multiple conformal dielectrics, non-Manhattan geometries, non-planar metals and metal fill.

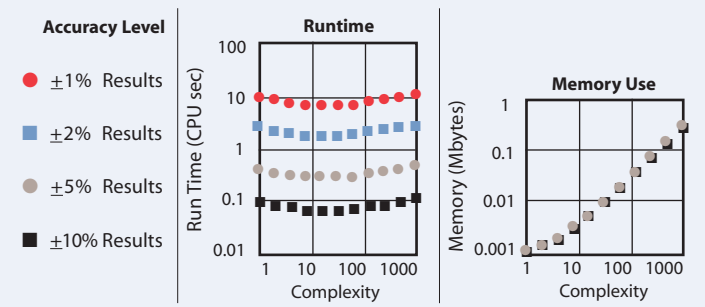
QuickCap can produce an output file containing self capacitance and coupling capacitance values. QuickCap is a highly accurate extractor that offers close correlation with exact analytical solutions and with silicon measurements. It has been proven to correlate to within 1 percent of silicon capacitance measurements.

QuickCap is the only extractor that provides dial-in accuracy and error bounds reporting on each net, allowing the user to make runtime versus accuracy tradeoffs.

Unique Runtime and Memory Efficiency

QuickCap is the only extraction tool that uses statistical methods to solve the exact governing physical equations in computing capacitance. Conventional approaches incorporate approximations made by deterministic methods. Consequently, QuickCap performs well in situations where other extractors fail or provide insufficient accuracy.

QuickCap's unique algorithms reduce runtime and memory requirements. Runtime is nearly independent of problem complexity (net length and number of polygons). QuickCap is also very memory efficient and, unlike many other solvers, memory use does not depend on the level of accuracy selected. These scalable runtime and memory characteristics enable QuickCap to deliver accurate critical net analysis for large designs.



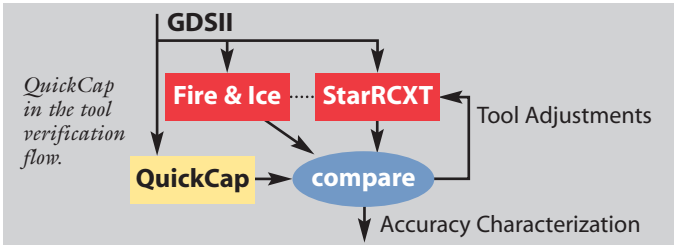
QuickCap NX accurately models advanced process effects.

Support for Correlation and Modeling

With its high accuracy, QuickCap is used not only as an analysis tool for integrated circuits, but also as a reference tool when evaluating other extractors or developing LPE models. QuickCap can be used to efficiently characterize the error of LPE capacitance values. Or, it can be used to find a best-fit polynomial model for LPE parameters, and to analyze the error of the resulting formula model.

The Gold Standard for Accuracy in Parasitic Capacitance Extraction

QuickCap is used by process engineers, designers, foundry engineers, CAD groups and EDA tool development teams. It is flow-independent and used in every major EDA flow. QuickCap is used to tune or verify chip implementation tools, and also to characterize process changes, critical cells and critical nets.



TECHNOLOGY FEATURES:

- Accurate self-coupling and distributed capacitances
- Dial-in accuracy and error bounds reporting for each net
- Low memory usage that is independent of accuracy
- Runtime that is nearly independent of net length
- Robust and accurate handling of complex geometries including non-Manhattan structures, conformal dielectrics and floating metal
- Analysis of LPE capacitance values
- Best linear fit of capacitance model polynomial coefficients
- **Inputs**
  - GDSII
  - Scripted text input
- **Platforms**
  - 64 bit Solaris and 32 and 64 bit Linux platforms

MAGMA

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