

USING ANSA / META FOR ELECTROMAGNETIC SIMULATION APPLICATIONS WITH CADENCE'S CLARITY 3D EM SOLVER

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ABSTRACT

A systematic full-wave electromagnetic simulation methodology for interconnects modeling based on ANSA[1] and META[2] pre and post processors and Cadence Clarity 3D Solver[3] is presented. The accuracy, efficiency and robustness of the proposed methodology is three-folded: First, an integrated simulation environment setup including geometry pre-processing and initial mesh generation provided by ANSA; Secondly, a finite elements based full-wave simulation approach using edge elements[4] integrated with a massively parallelized matrix solver; Finally, a multi-purposed post processor meeting diverging needs from various computer-aided engineering (CAE) disciplines from META.

The proposed methodology is successfully applied for large-scale and complicated interconnect modeling problems. A numerical example of interconnect capacitance extraction is presented to show the validity of the proposed methodology and achieved computational performance.

[1] ANSA, BETA CAE Systems, www.beta-cae.com/ansa.htm

[2] META, BETA CAE Systems, www.beta-cae.com/meta.htm

[3] Clarity 3D Solver, Cadence Design Systems, Inc. www.cadence.com

[4] Jin, Jian-Ming. The finite element method in electromagnetics. John Wiley & Sons, 2015