S

Vehicle Po ernet Design

Synopsys′ Saber® provides a complete design and verification solution for vehicle power networks

Overvie

Energy demand in modern automobiles increases with each

(powernet) performance and e   ciency to enhance system reliability.

Improving powernet reliability requires a systematic development approach that ensures reliability issues are addressed as an integral part of the design process. Design teams use robust design methodologies to manage complex energy generation and distribution problems, such as designing an alternator charging system, taking into account system and environmental variations that a   ect performance.

Robust Design For Vehicle Po er Net orks

`` Size system components to match ener1sno matcs to Simulate complete vehicle power netw component library
`` Model and characterize power networks using industry standard MAST and VHDL-AMS languages
`` Verify power network performance and ensure reliability with advanced sensitivity, statistical, and fault analyses
`` Choose from dozens of performance measurements to quickly analyze power network simulation results
`` Automate power network design and analysis using simulation and post-processing experiments
``

Energ Management

Embedded software control is required for efficient powernet energy management. Though traditionally separate activities, hardware and software design must now be integrated from the beginning of powernet development to avoid complications during system implementation. The Saber/Simulink co-simulation interface integrates hardware design with power management algorithm development, while providing access to Saber's comprehensive capabilities for robust design.

Automating Simulation and Anal sis

Robust design methodologies require repetitive simulation steps, many of which are time consuming to setup. The Saber suite of tools helps design teams define, execute and save simulation configurations and results as a series of experiments. The saved experiments can be loaded and customized for design processes that need to be repeated. For example, design teams can automate multiple Monte Carlo simulations and result generation.

Boosting Simulation Throughput

Robust design methodologies require advanced sensitivity and statistical analyses to verify the reliability of complex power networks. These analyses are recursive simulations requiring hundreds or thousands of runs which is impractical to support on

Synopsys, Inc.