Experts in Signal Integrity, Timing, Crosstalk and Power Integrity

Consulting Services

AREAS OF EXPERTISE:

System Level Signal Integrity

SiSoft consultants understand high-speed system design and how today’s complex systems need to be constructed to ensure success. Our expert staff is experienced at performing rigorous signal integrity, timing, crosstalk, and power integrity analysis for complex multi-board systems, advanced packages, ASICs, custom ICs, and complex interconnects. Whether the task is pre-layout analysis to develop rules that drive design layout or post-layout extraction of an existing design, our formal, structured Core-to-Core™ analysis methodology ensures a repeatable, comprehensive process to achieve high-speed design closure.

• Serial Links
  SiSoft’s staff has extensive experience with serial link designs to 28 Gb/s. Our Quantum Channel Designer product combines frequency-domain, time-domain and statistical analysis methods to predict design margins. Our consultants combine simulation with lab correlation to ensure serial links meet design performance and reliability requirements. Our partnerships with semiconductor vendors ensure access to the latest, most accurate IBIS-AMI models.

• Parallel Interfaces
  From PCI to 2400MTs DDR4, SiSoft engineers have provided robust design solutions for PCB, package, and ASICs. Our Quantum-SI product analyzes the impact of design decisions on signal integrity, power integrity, crosstalk, and timing to ensure first-pass design success.

• Power Integrity
  SiSoft engineers review power system implementations to provide constructive feedback. Reviews range from visual inspections of power planes and associated decoupling to detailed simulations of the power system in both the time and frequency domains.

Design Kits

SiSoft’s consulting team develops detailed design kits for industry standard serial and parallel interfaces that include technology-specific models and standards compliance checks. SiSoft also builds design kits based on specific vendor’s devices. Design kits provide “ready-to-run” analysis environments that shave weeks to months off a traditional design cycle by reducing or eliminating model development and design capture efforts. Analyzing design margins and compliance is as simple as editing the topologies to reflect your design and hitting “go”.

Methodology Training

SiSoft will work with you to assess your current high-speed design environment and train you in the same processes that our consultants use. While other design consultants are often reluctant to share their knowledge, SiSoft is in the business of enabling customers with the same methodologies it uses internally.
IBIS Modeling
SiSoft has been involved with the IBIS initiative since its beginning and has established itself as a leader in developing and validating quality IBIS models. We are an active member of the IBIS Open Forum and have a strong commitment to open modeling standards.

• Traditional IBIS buffer models
SiSoft consultants utilize SiSoft’s proprietary process to generate I/O Buffer models, typically achieving greater than 99 percent correlation between IBIS and HSPICE™ models. SiSoft’s IBIS modeling process accurately extracts component capacitance and models devices containing on-die termination (ODT) and differential I/O. SiSoft’s IBIS models are portable across IBIS simulation platforms.

IBIS-AMI Modeling
IBIS-AMI is a modeling standard for SerDes transceivers that provides fast, statistically significant analysis of high-speed serial links. IBIS-AMI models let designers optimize their serial links for performance, reliability and cost. SiSoft is one of the original authors of the IBIS-AMI standard and continually works with its semiconductor partners to extend the standard for new technologies.

• IBIS-AMI Model Development
SiSoft consultants work with you to assess your current modeling methodology and determine the best way to develop and validate IBIS-AMI models. SiSoft’s consultants then develop models for your transceivers, providing validated models and correlation data. SiSoft has developed and correlated more IBIS-AMI models than anyone.

• IBIS-AMI Tools and Training
SiSoft trains your staff on IBIS-AMI and shows you how to utilize existing models (Matlab, HSPICE…) to create fully compliant IBIS-AMI models. SiSoft accelerates your model development process by licensing its IBIS-AMI Software Development Kit, which includes algorithms for modeling transmit equalizers, peaking filters, Decision Feedback Equalizers (DFE) and different clock recovery schemes.

• IBIS-AMI Model Certification
SiSoft characterizes your AMI models through exhaustive testing and works with you to develop Certified Design Kits that ensure models are always set up correctly for simulation. SiSoft will also work with you to document your model’s correlation to Golden Reference Data.

Package Design
SiSoft has developed over 50, successful complex ASIC packages that leverage our extensive experience with package design, ASIC design and system implementation. Typical projects include bump/pad assignment, pin/ball assignment, determination of signal to return ratios, stackup design, SSO analysis and development of routing guidelines. SiSoft consultants build detailed electromagnetic models of package interfaces that support signal integrity, SSO, coupling, and power delivery analysis.

STAFF
SiSoft has been providing leading edge high-speed design consulting services since 1995. Our consulting staff averages more than 20 years of high-speed design experience and has a proven track record of solving the toughest high-speed design issues while reducing development time for our customers.

To learn more about SiSoft’s consulting services, contact sales@sisoft.com or visit our website at www.sisoft.com.