

Consulting Services

Experts in Signal Integrity, Timing, Crosstalk and Power Integrity



**System Level Signal Integrity • Package Design
Design Kits • IBIS/IBIS-AMI Modeling**

AREAS OF EXPERTISE:

System Level Signal Integrity

SiSoft consultants understand system design and how today's complex systems need to be constructed to ensure design success. We are 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 a task involves pre-layout analysis to develop and drive design layout or postlayout extraction of an existing design, our formal, structured Core-to-Core™ analysis methodology ensures a repeatable, comprehensive process to achieve High-Speed Design Closure™.

• Parallel Interfaces

From PCI to 1600Mbps DDR3, SiSoft engineers have provided robust design solutions for PCB, package, and ASICs. Using our Quantum-SI product, the impact of signal integrity, power integrity, crosstalk, and timing can be examined such that our solutions provide first-pass design success.

• Serial Links

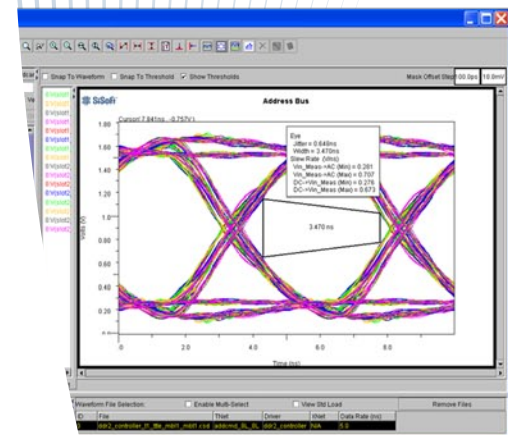
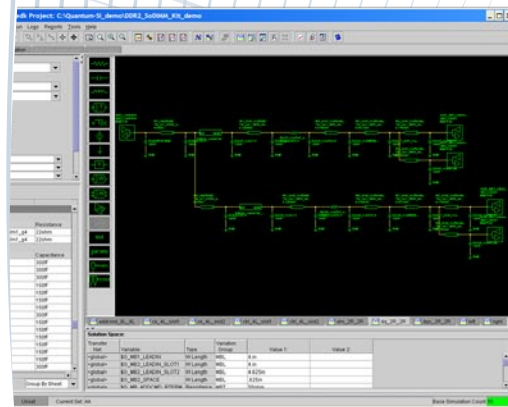
SiSoft's consulting staff has extensive experience with serial link designs up to 25 Gbps. Our consultants combine multiple analytical methods with experience in lab correlation to ensure serial links meet design performance and reliability requirements. Our partnerships with semiconductor vendors ensure access to the latest, most accurate SerDes transceiver models.

• Power Integrity

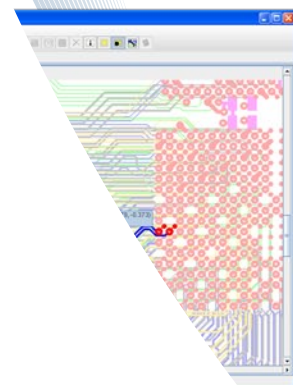
SiSoft engineers review power system implementations and provide constructive feedback. These reviews can be as simple as visual inspections of the power planes and decoupling implementation or may utilize detailed simulation of the power system in both the time and frequency domains.

Design Kits

SiSoft's consulting team develops, tests, and documents design kits for many industry standard interfaces. In addition, SiSoft can build customized implementation kits, based upon a specific customer design, that allow engineering teams to leverage the experience of an earlier implementation on future projects. SiSoft analysis 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 your design for design margins and compliance is as simple as editing the topologies to reflect your design and hitting "go".



	C	D	E	F	G
Hold Margin (ns)		Rmin Etch Delay (ns)	Rmax Etch Delay (ns)	Fmin Etch Delay (ns)	Fmax Etch Delay (ns)
AC specs		1.311	1.715	1.311	1.715
IC specs		1.445	1.814	1.446	1.814
	3.167	1.119	4.88	1.138	4.996
	0.93	1.335	2.108	1.345	2.085
	0.964	1.436	2.236	1.449	2.235
	0.205	1.083	1.953	1.096	1.957
	1.48	1.036	1.982	1.065	1.986
	1.44	1.191	1.762	1.207	1.758



Consulting Services (continued)

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, called SiQ, to generate and validate I/O Buffer models to ensure accuracy and quality. SiSoft is typically able to achieve 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 developed to be portable across IBIS simulation platforms.

IBIS-AMI Modeling

IBIS-AMI is a modeling standard for SerDes transceivers created to enable fast, statistically significant analysis of high-speed serial links. IBIS-AMI based analysis enables designers to 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 Training**

SiSoft can train your staff on the IBIS-AMI standard and show you how to utilize existing models (Matlab, HSPICE...) to create and validate a fully compliant IBIS-AMI model. SiSoft can accelerate your model development process by licensing its AMI technology code library, which includes algorithms for modeling transmit equalizers, peaking filters, Decision Feedback Equalizers (DFE) and different clock recovery schemes. SiSoft's on-site training covers any licensed source code to ensure your developers will be effective.

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. These models then get tied into our system level signal integrity analysis work.

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.

WHY USE SISOF FOR IBIS-AMI MODEL DEVELOPMENT?

- Undisputed leader in IBIS-AMI simulation & modeling technology
- First published AMI model – donated source code to IBIS community
- First public AMI model test simulator – free download
- Experience - Developed models & trained multiple ASIC, FPGA & Standard IC vendors
- Experience - over 25 Quantum Channel Designer® (QCD) Design Kits available
- Experience - correlated IBIS-AMI models for multiple vendors / processes

Our Quantum Channel Designer (QCD) software is the most advanced Serial link analysis tool available. QCD, a DesignVision Award Winner, can accelerate your model development process and speed your customer's design cycle.

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


SiSoft™
We Are Signal Integrity

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