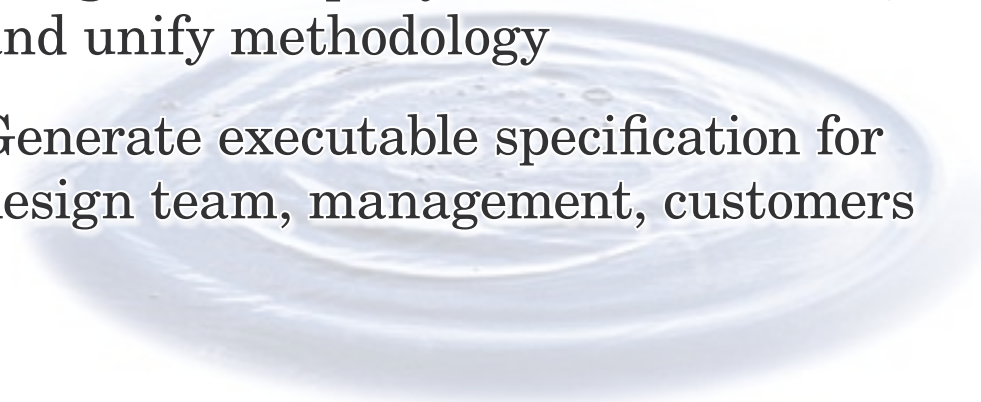




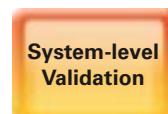
MIRABILIS

design

Corporate Systems Engineering Infrastructure

- ▶ Formalize project specification and accelerate architecture selection
 - ▶ Quickly create more detailed product specifications
 - ▶ Conduct ad-hoc “What-if” performance analysis
 - ▶ Integrate company tools and models, and unify methodology
 - ▶ Generate executable specification for design team, management, customers
- 

Mirabilis Design Inc.™ provides system engineering software tools and services to accelerate concept evaluation, product design and integration exploration of electronics and embedded software. **Mirabilis Design** products and services address the System-level Design question- “Is this the Right Design?” **Mirabilis Design’s** software product, **VisualSim™**, is a platform independent, block library-based graphical UML environment with a multi-domain simulation kernel to design and optimize size, performance, functionality and power. **VisualSim™** users construct models of the specification with different levels of detail and conduct performance and architecture exploration. Using **VisualSim™**, the requirements and concepts are refined into an optimized specification. This optimized graphical system prototype can be used as an executable specification embedded into documents and proposals and shared over the web for marketing purposes.



VisualSim

- ▶ Consolidates diverse system engineering tools into an integrated corporate infrastructure
- ▶ Creates interactive, visual and virtual prototype for performance and architecture validation
- ▶ Eliminates architecture errors and minimizes rework effort
- ▶ Allows software operation to be specified along with hardware

VisualSim Analyses

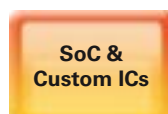
- ▶ Centralized vs. Distributed architecture trade-offs
- ▶ Multi-tasking allocation
- ▶ Buffer and system sizing
- ▶ System and component utilization
- ▶ End-to-end latency
- ▶ Throughput calculation
- ▶ Traffic and Quality-of-Service
- ▶ Instantaneous and system power profile
- ▶ Image quality and signal strength

VisualSim Product Features

- ▶ Graphical, hierarchical and UML block diagram and state machine entry
- ▶ Multi-domain simulation kernel
- ▶ Data-type and simulation polymorphic models
- ▶ Reusable, pre-built parameterized blocks
- ▶ Template generators for import of custom code
- ▶ Available links with common tools and open API for custom tool integration
- ▶ Dynamic run-time visualization tools, on-the-fly statistics and integrated debuggers
- ▶ User-extendable Expression Language for algorithm and protocol specification

VisualSim Benefits

- ▶ Over 3X reduction in system design and model development time
- ▶ Makes project schedule and cost more predictable
- ▶ Improves inter-team and customer communication
- ▶ Consolidates and integrates point tools to reduce cost



Visit us at: www.mirabilisdesign.com | View executable models online

Industry Requirements

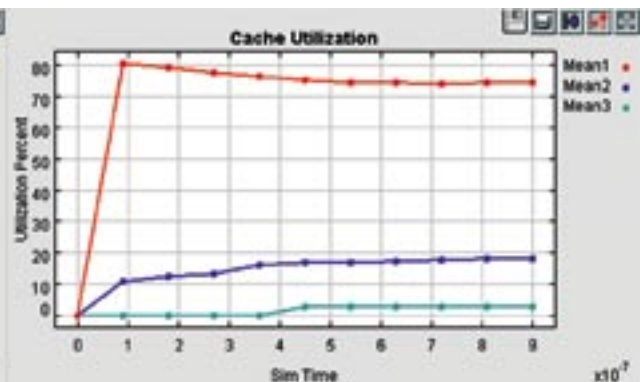
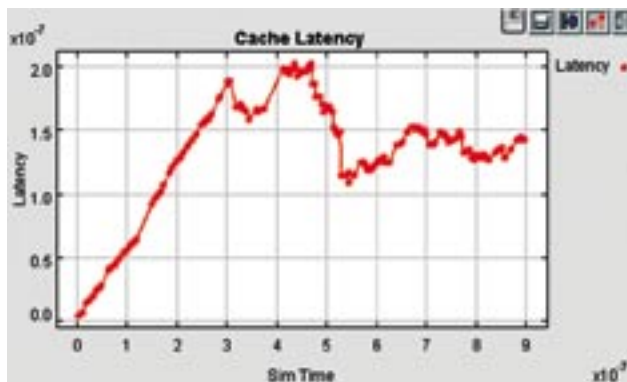
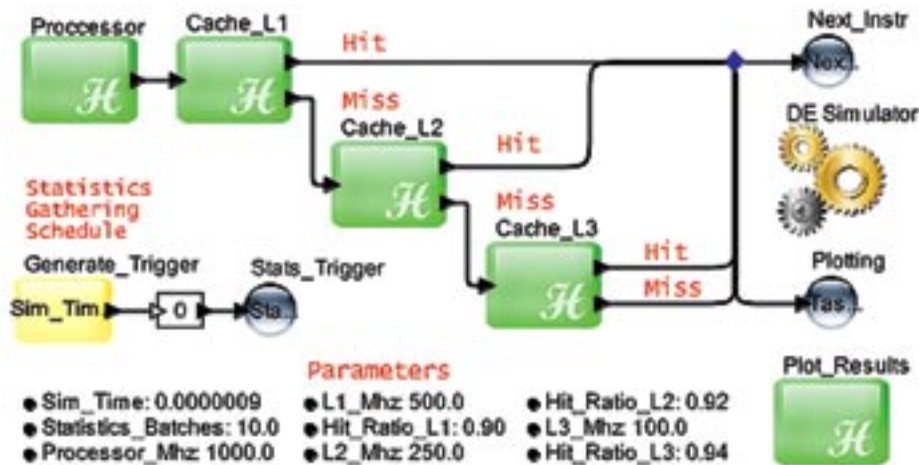
Early architecture trade-offs are especially important for systems with high throughput or fidelity requirements. Decisions such as component sizing, resource allocation for tasks, multi-threading vs. parallel processing, and arbitration or flow-control algorithms require evaluating numerous architectures and making large numbers of trade-off decisions. Architects must make the system scalable and operate with a mix of traffic conditions. The time window between product generations is shrinking and new architectures need to be designed prior to standards being finalized. Emerging products have a mixture of algorithms, digital, software, analog, protocols and controls that must all be integrated in hardware and software, evaluated for algorithm quality and tested for system performance. VisualSim satisfies these requirements.

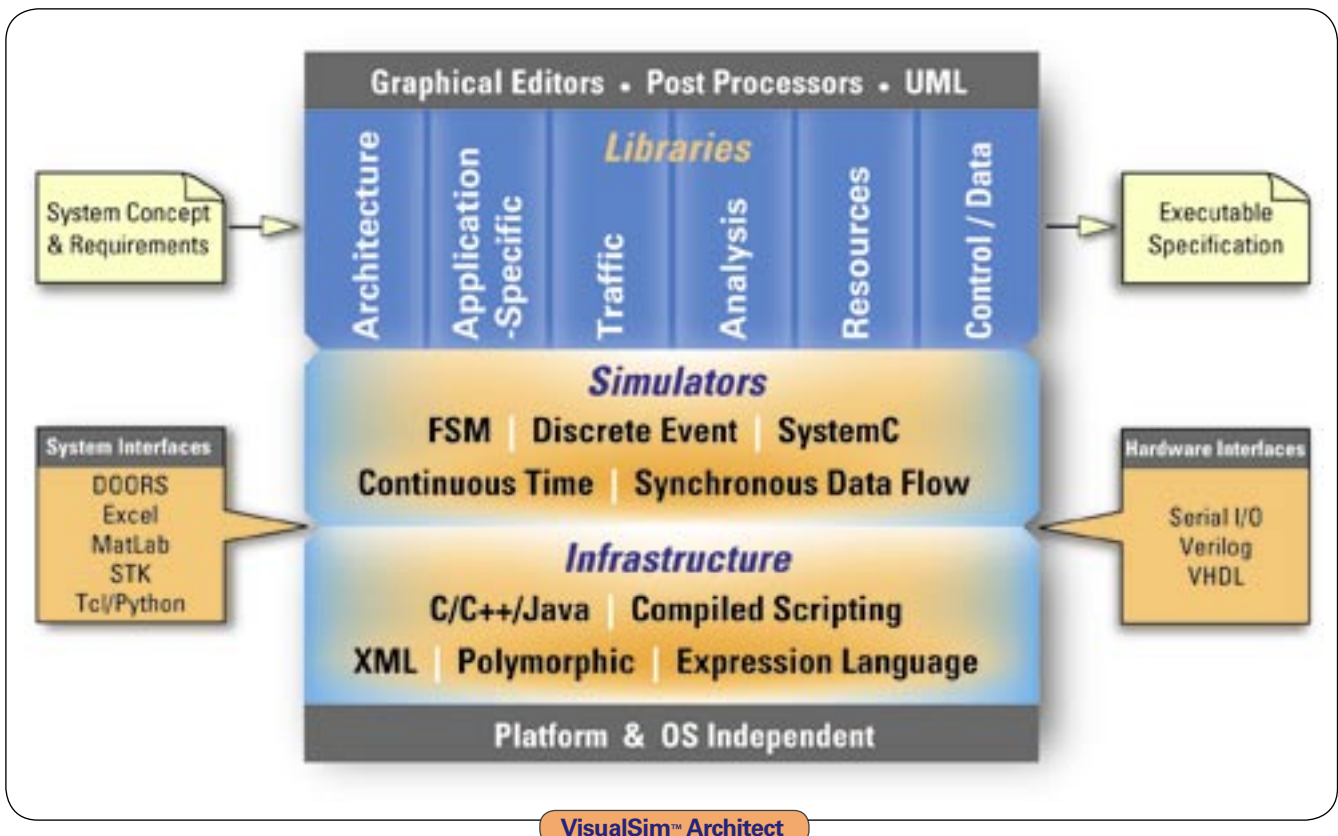
Company Requirements

Companies need a unified specification environment able to define leading-edge electronic products and defense systems leveraging distributed design teams and in collaboration with the end-customer and partners. Early performance exploration with the full system description will eliminate most architecture errors and provide a visual executable prototype for early customer wins. Because hardware and software teams use different tools, system architects need to easily describe software operation to design optimal hardware architecture. VisualSim achieves company requirements by providing a system design environment that combines graphical presentation for easy understanding, model reuse, pre-built parameterized libraries of functions, architecture, traffic generators and analyses tools, integration of common third-party tools and multiple abstractions and modes of computation.

Statistical Processor Instruction Stream: L1, L2, L3 Cache

This model explores processor requests to an L1, L2, or L3 Cache with user settable hit ratio parameters. When a cache request completes it releases the next processor request.





VisualSim™ Architect

Design–Flow Methodology

VisualSim methodology starts with the capture of an executable UML model of the customer requirements, coupled with engineering concepts and marketing constraints. This visual prototype forms the requirements for the design and is used as an Executable Specification for marketing and product design. The VisualSim virtual prototype combines macro-architecture details, signal and image processing algorithms, protocols and control systems. Based on the functional, performance and power constraints identified at the macro-architecture, the micro-architecture is defined at an assembly level of execution to verify the design at a micro-code level. The macro-architecture and micro-architecture components, sub-systems and the system models become a reusable qualified corporate modeling library. A variety of use-cases and workloads can be applied to validate the performance and identify bottlenecks. As the complete system is captured in a single environment, changes made to one part of the design can be tested for impact on the rest of the system.

Using VisualSim, architects can quickly capture the behavior, architecture resources and use-cases of their proposed and existing system to conduct ad-hoc trade-off analyses for performance and power. VisualSim accelerates model development by minimizing custom coding and reusing pre-built parameterized modeling blocks. Because non-modelers can use models previously built by specialists and stored in shared web-accessed libraries, VisualSim becomes a platform for corporate wide use.

VisualSim is used by Performance Engineers, Architects, Algorithm Developers, Embedded Designers and Systems Engineers in Defense, Computing, Wireless, Aerospace, Networking, Automotive and Semiconductor.

VisualSim Configurations

- ▶ **VisualSim Architect:** Desktop application used to architect, simulate and analyze models
- ▶ **VisualSim Add-ons:** Libraries, interfaces and analysis tools
- ▶ **VisualSim Explorer:** View, modify parameters and execute simulations from within common browsers

About Mirabilis Design Inc.

Founded in 2002, and headquartered in Sunnyvale, CA, USA, Mirabilis Design is an innovative software company providing systems engineering solutions and services to create a corporate system design methodology with a fully integrated flow from marketing requirements to product development.

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