

SYSTEM LEVEL POWER AND PERFORMANCE OPTIMIZATION

UNCOVER POWER ISSUES EARLIER IN THE DESIGN CYCLE

- Reduce project cost and ensure time to market
- Optimize software to increase power efficiency
- Orders of magnitude faster power analysis
- 100% cycle accuracy to characterize performance
- Single platform to understand trade-offs between power and performance



SYSTEM LEVEL

It is well understood that it is easier to find and fix design issues earlier in the design cycle compared to later stages. The cost of fixing or changing a design in late project phases is extremely costly, therefore a solution that allows design teams to “shift left” and address issues earlier becomes extremely valuable to projects, ensuring they can meet their schedules and budgets.

Traditional power solutions only provide designers the ability to analyze and address power issues in late stage development. The integration of Baum’s power models with Arm® Cycle Models and Arm SoC Designer virtual prototype enables designers to understand and analyze power issues much earlier in the design cycle than ever before.

Combining the efficiency of Arm Cycle Models with the very low-overhead of Baum’s power models, provide the high speed required to do system level simulation without compromising accuracy. Arm Cycle Models are 100% implementation accurate while Baum’s power models achieve higher accuracy than competing solutions. Using these models in Arm SoC Designer virtual prototype combines the best of both worlds to give designers a high-speed very accurate simulation platform to analyze performance and power in one unified environment.

In addition, Arm SoC Designer makes it very easy to run software and firmware with the models enabling system engineers to understand and debug the dynamics between the software and power consumption. This is particularly useful in optimizing power management software.

The speed and accuracy achieved by combining Arm Cycle Models with Baum’s power models in Arm SoC Designer virtual prototype gives design teams a platform to analyze power and performance in very realistic scenarios. It gives designers the only solutions where they can confidently understand system level power and performance issues and trade-offs on a single platform.

Q: How are the Arm Cycle Models integrated with Baum’s Power models

A: A high-speed API is used as the communication channel between the Arm Cycle Models and Baum’s power models ensuring the most efficient and lowest overhead integration.

Q: How accurate is the solution?

A: Correct by construction! Arm Cycle Models are 100% implementation accurate because they are generated directly from the design RTL description. Similarly, Baum power models are also automatically generated from the same RTL source descriptions, thereby providing coherency between the performance and power modeling. Combining the two types of models provides the best-in-class platform for system level analysis with the highest level of accuracy.

Q: How fast is the platform?

A: Arm Cycle Models are the fastest models available that maintain design accuracy. Baum's power models typically run 100x to 200x faster than other power analysis solutions on the market. Communication overhead between the two models have been minimized by using a high-speed API ensuring the fastest simulation platform possible.

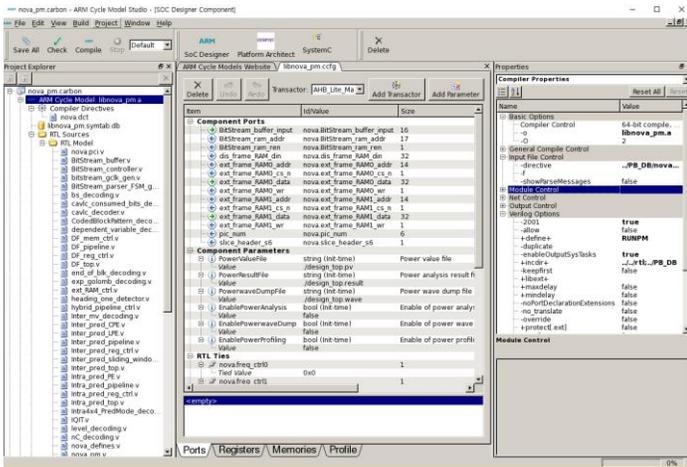


Figure 1: Arm Cycle Model Studio

Modeling environment used to create the Arm Cycle Models as well as providing the interface hooks to connect the performance and power models. Intuitive and straight forward user interface, making it easy to integrate Arm Cycle Models to Baum power models.

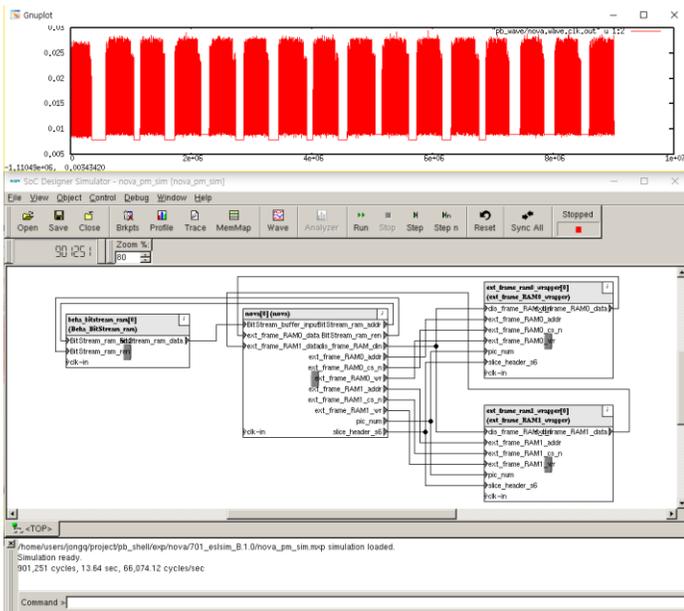


Figure 2: Time-based Power Waveforms

On the fly, fast accurate dynamic power analysis identifies power issues quickly

Figure 3: Arm SoC Designer

Integrate software, Arm Cycle Models and Baum power models into one platform to understand the dynamics and trade-offs between performance and power while executing realistic system scenarios and software.

“Having a solution that achieves both the speed necessary to run a variety of realistic scenarios combined with providing a very high level of accuracy allowed us to uncover power problems quickly and identify where to make the fixes. “

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