



Simulation Streamlines Production, Improves Inventory Control, Shaves Costs

By Kathi Hansen, Marketing Specialist, Imagine That, Inc., San Jose, CA

Since its birth in the early 1980s, wireless communication has emerged as a hotbed of technological innovation. A majority of the working population has turned to mobile voice and data communications.

Competition in the digital wireless communication field is fierce, and companies that want to stay in the game must deliver reliable and cost-effective service. QUALCOMM, Inc. and other providers of wireless infrastructure equipment have struggled to meet this emerging demand while minimizing the investment risk associated with the implementation of newer technology.



Simulation Saves Costs

Simulation has helped QUALCOMM maintain its status as a leader of digital wireless communications products and technologies. By using "Extend" from Imagine That, Inc., QUALCOMM streamlined its equipment manufacturing processes and improved inventory control, generating significant cost savings.

There are three major components that affect the time-to-market and production costs for QUALCOMM's infrastructure equipment:

- How long it takes to build any model mix of product.
- The amount of capital needed to support that build within a specified time frame.
- Labor requirements for assembly and test.

To examine these components, QUALCOMM had been doing a lot of rough-cut capacity modeling using a spreadsheet. But the static calculations were getting too complicated and it was difficult to make changes to those models. The company also wanted an easier way for its customers to input a number of different discrete variables to get results.

"When you're working with static spreadsheet calculations it's very hard to model debug and rework processes, especially when you're passing yield defects into earlier portions of the process," claims Rob Shinno, Senior Manufacturing Engineer at QUALCOMM. "It's much easier to do it in simulation, and especially with Extend, which allows you to accumulate items from various parts of the model, have them re-enter the system, and have the calculations come out correctly."

Providing the Right Mix

Though a number of different simulation tools – including ProModel, Simul8, and Witness – were evaluated, Extend was chosen because it was the only tool that provided the right mix of flexibility needed for customization and reusability of design components, while keeping the models at a maintainable level.

So far, QUALCOMM has created a group of seven Extend models that look at different portions of a particular factory. Historical data and figures derived from spreadsheet calculations by industrial engineers are input directly from the spreadsheet database into the Extend models. Once the industrial engineers validate the models, they are passed on to manufacturing engineers who use them in the design process.

The Extend capacity models are used in the manufacturing process for QUALCOMM's infrastructure equipment. They have helped the manufacturer determine current line sizing, capital equipment options, and the scheduling of personnel now and when the product ramps up in higher volumes. Once fully implemented, QUALCOMM can directly input master schedule data to its Extend models.

Inventory Control

Simulation has been used successfully in other departments as well. The Supply Chain Management group built an Extend model for pull system, just-in-time, and KANBAN inventory sizing. They've passed the model on to about 20 of QUALCOMM's suppliers to help control inventory by managing logistics, transportation, and warehousing of parts and materials. Using Extend to simulate its supply chain has helped the company to reduce its component/material inventories significantly on KANBAN parts, which translates into substantial cost savings. Later this year, the company plans to start another set of models to look at its CCA factory and assembly lines.

QUALCOMM intends to continue to use Extend as a cost-effective tool in the fierce battle that lies ahead as the technologically advanced wireless world progresses at a mind-numbing pace.

For this project, QUALCOMM used the Extend OR package. Other products in the Extend line include:

Extend Suite	\$3995 ⁰⁰
Extend Industry	2295 ⁰⁰
Extend OR	1595 ⁰⁰
Extend CP	895 ⁰⁰

For more information, contact:

Imagine That, Inc.
6830 Via Del Oro, Suite 230
San Jose, CA 95119 USA
Phone: 408.365.0305
Fax: 408.629.1251
Email: extend@imaginethatinc.com
www.imaginethatinc.com