

Synchronous technology key messages and FAQ

Key messages

- Synchronous technology is the next breakthrough in digital product development productivity.
- Synchronous technology provides the first history-free, feature-based modeling technology that enables up to 100 times faster design experience.
- Siemens saw the technology during the due diligence phase of the UGS acquisition and accelerated its development.

Supporting messages

- Synchronous technology combines the best of constraint driven techniques with direct modeling in a patent-pending technology that will cut new product development and introduction by 50 percent and provide millions of dollars in product development productivity gains.
- Technology advancements result in the first-ever design solution that simultaneously synchronizes geometry and rules through a new decision-making inference engine that accelerates innovation in four key areas:
 - *Fast idea capture:* Synchronous technology captures ideas as fast as the user thinks them, with up to 100 times faster design experience.
 - *Fast design changes:* The technology automates the implementation of planned or unplanned design changes to seconds versus hours.
 - *Improved multi-CAD re-use:* The technology allows users to re-use data without remodeling.
 - *New user experience:* The technology provides a new user interaction experience that simplifies CAD and makes 3D as easy to use as 2D.

- *Availability* – will be implemented in the next versions of both Solid Edge® and NX® software, each of which are scheduled for launch on May 21 with general availability Summer 2008.

Frequently asked questions

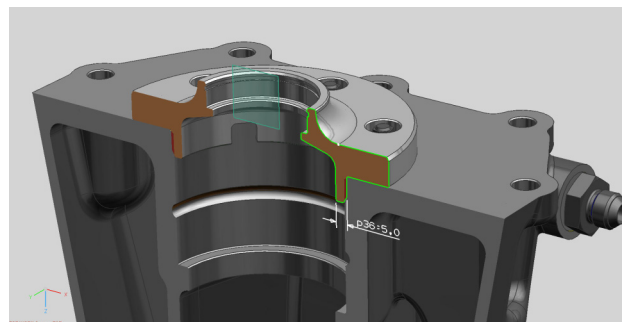
PLM industry impact

What is the significance of this technology for the PLM industry? What other technology would you compare this to in terms of magnitude?

Think back to what parametric did for this industry. This technology will fundamentally change how users design with these tools. We've spent years researching the fundamental issues inherent with present day CAD systems. What we have with synchronous technology removes many of those barriers for expansion so we see limitless leverage of this technology throughout all stages of the product lifecycle. The technology is extensible for a number of years and right now seems boundless in terms of its application.

How does this change innovation in this industry?

It provides the flexibility and freedom to evolve designs and make changes at will, but without losing the power of the knowledge gained with constraint and dimension driven systems allowing engineers and designers to do what they do best rather than focus on how to manipulate a CAD system. This all translates to using designers' brainpower to innovate rather than how to manipulate the CAD system.



PLM Software

Answers for industry.

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***What market demand drove the need for this technology?
Were any customers requesting this?***

- We continually found that customers wanted the power of parametric systems, but were frustrated when they needed to handle unplanned change. The market is also experiencing an increased demand for effective multi-CAD environments and a system so simple that non-designers can leverage the engineering design throughout the enterprise and supply chain.
- Yes, many of our customers have talked to us about the inherent issues they have with making changes to a parametric design, but from a development standpoint this is the brainchild of our NX and Solid Edge product organizations and demonstrates the power of Siemens PLM Software to lead with innovative technologies.
- One customer comment: “This new synchronous technology is indeed the next big breakthrough in digital product development,” said Jack Beeckman, PLM manager, Liebert Corp. “It marks a new era in modeling that allows an engineer the freedom to be an engineer. With an instantaneous modeling experience, this is going to change the way people think about using CAD. More importantly it's going to change the way CAD enables them to think about ‘what’ they want to model, and not ‘how’ they want to model.”

What advantage will this give Solid Edge and NX over its competitors who may use Parasolid®/D-Cubed™? And why is this technology not provided to others as part of your openness strategy?

- Our openness with our core kernel technology has not changed. Solid Edge and NX will now also leverage synchronous technology as an application layer on top of Parasolid/D-cubed. This is how we differentiate ourselves in the industry to our end users. We could not have done this without the power of Parasolid.

- Our competition is free to innovate on top of those platforms and they have. However we believe that the breakthroughs created here are substantial and sustainable. Users looking at Solid Edge and NX will see clear differences between them and other CAD applications.

Siemens CAD commitment

Was this technology something Siemens valued when it acquired UGS? How long has Siemens PLM Software been developing this technology? How significant is the R&D effort involved?

- Yes, it was a technology that we disclosed during the due diligence process. Siemens was impressed with it and helped accelerate the project.
- While we do not disclose the extent of our development efforts, we can say that this is a major breakthrough that we believe is sustainable in the market for years.

Some in the industry have said that Siemens' purchase of UGS put the focus on managing automation in manufacturing/shop floor. Does this CAD technology/announcement prove that CAD is alive and kicking at Siemens PLM Software?

Yes – Siemens' investment in UGS and its acceleration of this technology project illustrates that CAD is at the heart of the product lifecycle. We continue to have a leading position in CAD through the combination of both NX and Solid Edge. CAD has always been important to Siemens and anything different was mere rumor.

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You typically do “product” vs. “technology” announcements. Why are you announcing this technology to the market now?

- As we’ve said, we’ve done a great deal of research in this area over a number of years. In the last year we’ve made an enormous amount of progress and with that progress has come a lot of internal enthusiasm. As such, we wanted to get the technology out into the market so that people can begin to understand it. This will ultimately speed adoption with the introduction of the next versions of NX and Solid Edge.
- We also wanted everyone to know that we are putting the technology into both NX and Solid Edge. How they choose to implement the technology may vary, but it is the same technology.

How do you compare some of the modeling features in this new technology with what was announced with NX 5 Design Freedom?

With NX 5 we greatly simplified the user experience in many areas, such as roles-based user interface, block menus and Design Freedom to name a few. The feedback direct from our customers and indirectly from the growth numbers for NX 5 told us we needed to continue to simplify the user experience. With NX 6 we’ve enhanced the Design Freedom capabilities with the synchronous technology application layer.

Competition

How does this distance you from the competition? Do you expect your competitors to offer something similar in the near future?

We believe that we now have a sustainable lead based on the technical merits of the application layer. It takes years of intimate knowledge of the solid modeling kernel and constraint solver, as well as a unique perspective on how to apply these tools to be able to put such an application layer together.

How do you position or differentiate this technology against other history-based and history-less products?

- The big issue with traditional history-less modelers is that they cannot and do not capture and retain constraints and relationships (like history-based parametric modelers do), and therefore are not very efficient when it comes to dealing with planned change like family of parts. This technology provides the benefits of constraint- and dimension-driven modeling without the overhead of the history tree and with the flexibility of traditional history-less modelers.
- We have created a way to interact much more efficiently and intuitively with today’s parametric history-based modeling. Users can work through models without being confined to the way the model was originally constructed. This new approach instantaneously synchronizes engineering relationships, features, and parameters through a more direct interaction paradigm.

Synchronous technology doesn’t require the memorization of idiosyncrasies of complex CAD systems. It doesn’t require a user to be programmer. It gives the user direct control of the design with immediate feedback.

Siemens PLM Software users

Who are the target users for this technology?

- We see this as a pervasive technology because of the simplicity. Our belief is this will move CAD out of a designer specialty into an enterprise capability. So anyone that is designing or manufacturing a product will benefit.
- All mechanical designers across discreet design and manufacturing will ultimately want to use synchronous technology. Initially machine designers will see the most benefit.

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When will Solid Edge/NX users begin to see some of the benefits from this technology?

This technology will be incorporated into the next releases of both NX and Solid Edge. They will immediately feel the impact of the increase in productivity that it provides. More information will be coming on how the technology will be applied in NX and Solid Edge with those launches in late May.

***How real is the “up to 100x faster design experience”?
Is that a Siemens PLM Software benchmark or an external measure?***

- From our research we have developed specific use cases from our customers where we've had greater than 100x performance improvement. We now also have an industry analyst who has validated that 100x could even be conservative (Dr. Ken Versprille of CPDA).
- *Example:* There are cases from our customers of complex mechanical parts with well over 500 features, which means 500 steps in computation. With this volume of features, it was nearly impossible for any other designer (other than the original author) to edit, so the design would have to be recreated.
- The technology allows a user to do some things that were simply not possible before, or would have had to do over from scratch. Measuring something that couldn't be done that can now be done simply is impossible to measure.

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