SIEMENS CHOOSES VXWORKS TO POWER ITS HIGH-PERFORMANCE INDUSTRIAL PCS

Development Team Cuts Engineering Costs in Half and
Speed Time-to-Market

Siemens AG

Industry
Factory automation products

Solution
- VxWorks

Benefits
- Reduced development and maintenance costs by 50%
- Accelerated time-to-market by four months
- Improved productivity of the engineering team

Contrary to the old cliché, if you want something done right, it doesn't always pay to do it yourself—as the Siemens Industrial PC Group found out.

In the highly fragmented and competitive industrial PC market, where performance, safety, and reliability are at a premium, Siemens is a market leader. The company's high-performance industrial computers operate in extremely demanding environments, often directly on the plant floor. A standard PC operating system does not always fit the requirements of sophisticated industrial applications. Siemens industrial PCs need a real-time operating system (RTOS) in order to execute tasks requiring determinism, fast response times, and safety.

The Challenge

Until recently, the company used a homegrown RTOS called RMOS. While using an operating system developed in-house may have made sense initially, it required a significant effort to maintain. "The operating system was stable, but every time we got a new piece of hardware or a new Internet controller, we would have to design and develop the driver for it. That took a lot of time and diverted our engineering resources, which drove up our development costs. If there were issues with the operating system, two or three people would be needed to handle support instead of working on the development."

The industrial PC team concluded it could eliminate a number of steps in development and save significant sums by replacing its in-house system with a proven commercial RTOS.

The question: which one?

The Solution

"Through our research, we determined that Wind River VxWorks was the best choice," Sauter says. "Wind River is the market leader in RTOSes, and we wanted a proven solution with a long track record of success. VxWorks is the most reputable and reliable solution of all the commercial RTOS options we looked at."

Safety and security were other factors in the decision. "We also chose Wind River because of their expertise in critical markets like aerospace and defense, where reliability, safety, and security are paramount. Knowing that VxWorks has the certification required to meet industry standards, we can save time and reduce the cost of certification whenever our customers might need it."

Further, Siemens saw the opportunity to leverage the global presence and worldwide reputation of Wind River® among its industrial customers. "Wind River is a global company and has support staff around the world," Sauter notes. "That is important for Siemens because we have customers all over the world. And we have to make sure they experience the high level of service they are used to with our automation products."

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> *—Anton Sauter, Product Manager SIMATIC IPC, Siemens Industrial PC Group*

The Result: Lower Costs, Faster Time-to-Market

VxWorks® eliminated the time-consuming and costly process of maintaining and upgrading a proprietary RTOS and redesigning and building new drivers for every new piece of hardware. "With VxWorks we don't have to develop or maintain our own operating system, so we can accelerate our time-to-market and roll out our products much faster than ever before," Sauter reports. "In fact, we were able to release our product four months ahead of schedule."

By reducing time and resources spent on development and maintenance, the Siemens team cut engineering costs by 50% compared to its homegrown system. The group has been able to make better use of its engineering talent by redeploying some engineers who originally worked on the in-house product to more revenue-generating projects.

The Intel Connection

It also made a difference that Wind River collaborates closely with Intel® to optimize compatibility between Intel hardware and Wind River software. "Our hardware is based entirely on Intel chips," says Sauter. "We use Intel Core CPUs in all our IPC motherboards. It is the best technology. So the relationship between Intel and Wind River was definitely a big point in our decision. Whenever we are rolling out new hardware, we know we can have the necessary drivers immediately, which will further accelerate time-to-market for the long term."

Better Perfomance on the Line

Just as VxWorks has enabled Siemens to deliver a superior product to market more quickly, it has also brought advantages to the company's end customers in their production lines. "We have developed a hardware support package for VxWorks that allows our customers to use all the added functionalities that require a real-time operating system," Sauter explains. "Our industry often has special requirements that call for very fast reaction times and instant data access. One example is the powerful shears used to cut metal—they have to be very precise and react within milliseconds or even faster. Another example is getting real-time access to data for diagnosis of temperature or speed. And all this with a smooth integration into PROFINET or PROFIBUS communication networks. Standard operating systems aren't always able to cope with those requirements."

"Using Wind River VxWorks instead of building and maintaining our own operating system has enabled us to accelerate our time-to-market by 4 months and cut our engineering costs by 50%."

Partnering for Higher Performance

For Siemens, delivering a competitive product required not simply an RTOS, but one that could streamline development while meeting its customers' demanding performance requirements. The combination of Wind River and Intel technology with Siemens' engineering prowess has resulted in a high-performance industrial PC for today's high-volume production environments. "When we evaluated all the pros and cons, it was a smarter decision to buy versus continuing to build our own operating system," says Sauter. "Wind River VxWorks has proven to be the best-in-class solution for our industry."