

Technology acquisitions set to develop emerging markets

## Beckhoff opens new markets and expands New Automation Technology



→ In an interview with Ronald Heinze, chief editor of openautomation, managing director Hans Beckhoff talks about innovations and the economic development of Beckhoff.

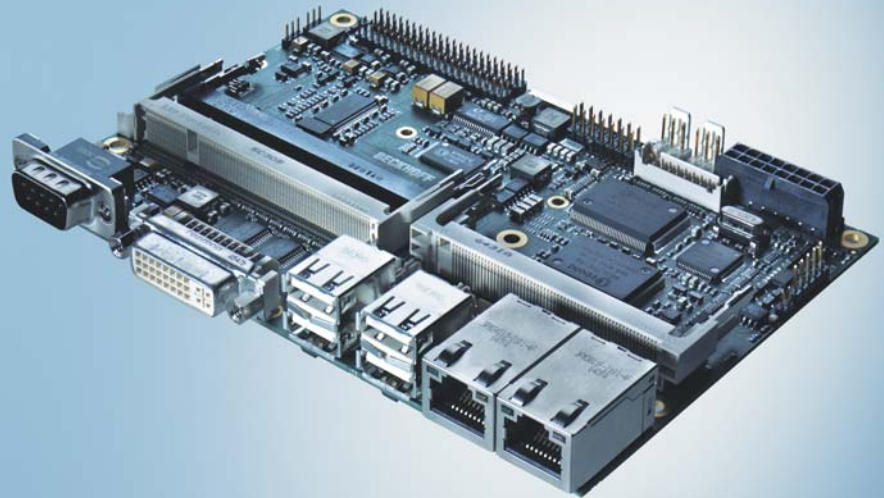
Suppliers of automation technology, such as Beckhoff, look back on a very successful year in 2006. Entrepreneur Hans Beckhoff does not share the industry's somewhat pessimistic outlook for 2007: "There is no objective reason why the situation should deteriorate in the long term. We know from many of our customers in the machine building sector that order books are already full for the first six months of 2007. The speed of growth may be slowing, largely due to the fact that capacity limits are being reached. However, a negative development is not expected." Hans Beckhoff, therefore, sees no signs of a weakening economy – locally or globally. "Provided the main parameters remain stable, the positive economic situation can continue", said Beckhoff. Accordingly, he expects the upward trend to continue for at least two or three years. "There are even signs that the Western European economy has adapted well to the continuously changing conditions of globalization. The atmosphere among medium-sized companies is particularly positive", said Beckhoff. "Many companies are going ahead with investments they had put off in the past."

Hans Beckhoff also expects the proposed and agreed German tax reforms to have a positive influence. The company tax reform will improve the competitive environment for German companies. In the past, fully self-financed companies were liable for a 40% corporation tax. In the future, this rate will drop to a maximum of 30%. "This means that we have more capital available for further investments in new technology", said Hans Beckhoff. "The proposed inheritance tax reform would also be a blessing, particularly for family enterprises."

This year, Beckhoff Automation GmbH will achieve a turnover of around 185 million euros. Worldwide, the company now has around 740 employees in Germany and the 18 subsidiaries. "With international distributors, we are represented in more than 60 countries", said Hans Beckhoff. Our export share currently amounts to 41% of total turnover. This year alone, we established subsidiaries in Spain, Belgium, Australia, Brazil and South Africa. The Chinese market, where Beckhoff is represented at three locations, is also very significant. "In China we achieved growth of 30% this year. The majority of sales were generated in the Shanghai

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Motherboards "made in Germany": All typical profiles such as ATX, slot CPU, 3 1/2" board and PC/104 are supported. The photo shows a 3 1/2" motherboard for the C69xx Industrial PC and the CP62xx built-in Panel PC.



region", said Hans Beckhoff. "In early 2007, we will relocate our Chinese head office from Beijing to Shanghai and offer additional office, training and exhibition space. Our aim is to open up the Chinese market by focusing on medium-sized machine manufacturers located in that region."

## Reinforcement for embedded technologies

Beckhoff continues to grow under its own steam. "We are not going to change our general strategy", said Hans Beckhoff. "We want to continue growing organically. Nevertheless, for the first time in the history of the company, we acquired two companies: Embedded-Logic Design & More GmbH and BeDeHa GmbH based in Münster, Germany." These two companies specializing in customized motherboards and Bios software became part of Beckhoff Automation GmbH in July 2006. "Our first acquisition: We bought technology for an emerging market, thereby strengthening our own development capacities", said Hans

Beckhoff. The embedded specialists will develop motherboards for the standard Beckhoff product ranges and individual motherboards based on customer specifications. Beckhoff has ambitious expansion plans for these new subsidiaries: in Münster (Westphalia) a technology center for state-of-the-art industrial PC technology is emerging. "With Beckhoff motherboards – made in Germany – we offer optimally adapted PC technology for industrial applications, combined with high long-term availability", said Hans Beckhoff. In addition to machine, manufacturing and building automation, Beckhoff intends to address the area of device automation, i.e. control of systems and devices for medical and communication systems, for example. "These activities complement our existing portfolio very well", said Hans Beckhoff.

"Our international sales network is well suited to market the products made by the embedded specialists", said Beckhoff. There are many synergies, e.g. for the emerging market of medical equipment, that are of interest both for embedded products and for EtherCAT I/O modules. Hans Beckhoff, whose wife is a doctor, is



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convinced that the medical equipment market offers significant potential, particularly in Germany: "There are tremendous opportunities to advance medical technologies for our country and the world." Embedded technology, of course, covers a vast market segment. PC-based controllers from the CX series are defined as "Embedded PCs," for example. While these devices are mainly "embedded" on the DIN rail, an embedded module is often a specific piece of hardware with specific software for specific functions. "Many embedded solutions are manufacturer-specific systems", said Beckhoff. "Our scalable PC and I/O technology offers a high-performance and cost-effective alternative."

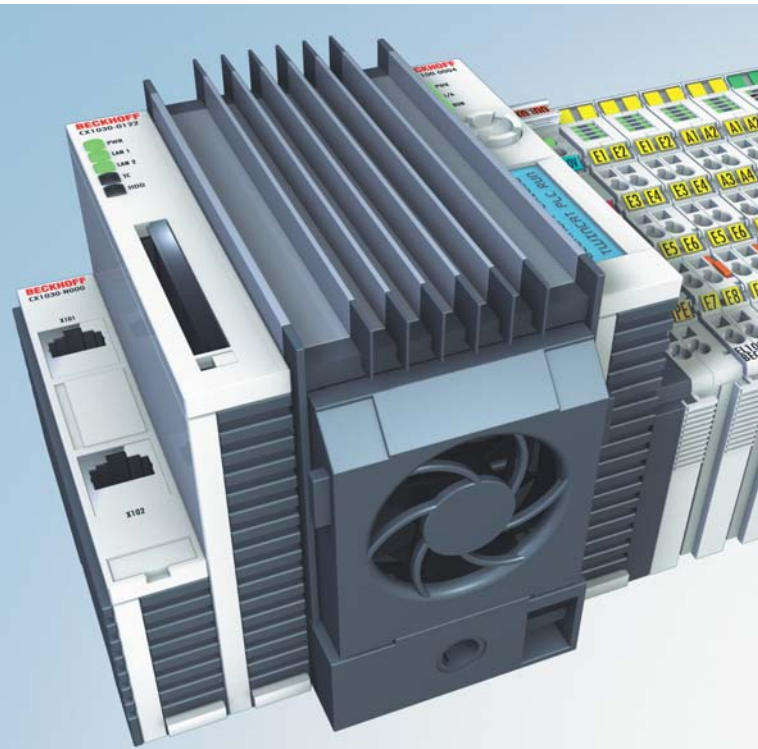
### More precision and speed with TwinCAT

Precision and speed are the deciding factors for the XFC architectures (eXtreme Fast Machine Control). To this end, Beckhoff consolidated the benefits of PC Control and EtherCAT and optimized the common architecture even further: As a result, Beckhoff is able to present a machine control system at SPS/IPC/DRIVES 2006 that enables a sampling time of 100  $\mu$ s with a signal response time of 85  $\mu$ s. Hans Beckhoff compares these performance data with those of an advanced Servo Drive where a special DSP with specially tuned programming controls the current in about 100  $\mu$ s. "With our "eXtreme Fast Machine Control" technology, we enable every PLC programmer to achieve control technology at this level. In this way, we established a new performance class for general control technology!" said Beckhoff. This development was made possible by combining the benefits of EtherCAT with the "on-the-fly Ethernet" concept as well as distributed clocks with real-time TwinCAT technology under Windows.

Major Canadian machine manufacturer, Husky Injection Molding Systems has already implemented the "eXtreme Fast Machine Control" concept in one of their injection molding machines, leading to noticeable quality improvement due to the higher speed.



"With the new CP72xx Panel PC series with integrated embedded control technology and all-round IP 65 protection, we can offer a multi-purpose machine control system with slimline design, high performance, and lower costs", said Beckhoff. "With a very compact Panel PC machine, manufacturers are able to realize control systems with 50 axes, for example." Since the PC integrates the whole computer core in the display, users save space in the control cabinet and can reduce the number of connections. "The integration of CPU and LCD reduces costs for mechanical and electrical components", said Beckhoff. The idea behind the concept: "The whole machine control system can be put together with a 24 V connection and two Ethernet connections. Various processors and screen sizes are available. In addition, Beckhoff intends to offer a fan-less version and models with a new type of integrated UPS.



Beckhoff introduce several new Industrial PCs at the SPS/IPC/DRIVES fair in Nuremberg/Germany. With the successful CX Embedded PC series, Beckhoff brings PC technology and modular I/O together as a single DIN rail-mounted unit. New products include the 500 MHz CX1010 model for medium-performance applications and the high-end CX1030 1.8 GHz model with Pentium® M processor. The CX9010 with 533 MHz IXP processor and XScale® technology complements the range of Beckhoff Ethernet controllers.

Hans Beckhoff considers Windows CE 6, announced by Microsoft for the second half of 2006, to be a big advancement for automation engineering. The new operating system kernel increases the number of tasks from 32 to 32,768. A task may cover a memory area of 2 GB. In the past, the limit was 32 MB. "This makes Windows CE almost as powerful as Windows XP", said Beckhoff. "Many users will benefit from this development." Since Windows CE 6 (unlike Windows XP) features inherent real-time capability and is more cost-effective, it will become the preferred environment for embedded applications and programmable automation controllers (PAC), according to Hans Beckhoff. "Our PC-based embedded control technology automatically meets the requirements of the hardware referred to as 'programmable automation controllers' in the North American market", said Beckhoff. The successful CX family is, therefore, ideally suited for the PAC market.

## More safety, more drive

According to Hans Beckhoff, cooperation between Beckhoff, Bosch, 3S and WAGO in the area of safety technology is also progressing well. The first products are expected during the second half of next year: a freely programmable PLC compiler and editor for safety applications, which Beckhoff is integrating in TwinCAT. In this context, Hans Beckhoff discusses the TwinSAFE safety solution from

Beckhoff. "TwinSAFE is a finished and certified product that is currently being rolled out worldwide and is already beginning to establish itself as a key revenue generator." TwinSAFE, which can parameterize ready-made function blocks for safety applications, can already replace many safety PLC systems cost-effectively.

Sales are further boosted by drive technology, with above-average increases of around 30%. Delivery of the new AX5000 Servo Drive product line, which Beckhoff developed in-house, will take place soon. "Acceptance is likely to be high. The mix of PC technology, fast Ethernet communication and high-performance drives ensures the right balance of the algorithms within the overall solution," said Hans Beckhoff. In the future, this new series will be complemented with additional drives to cover the lower and higher performance ranges.

In the future, the Beckhoff PC Control world will integrate many additional engineering functions as standard, referred to by Hans Beckhoff as "scientific automation". "Continuously increasing CPU performance and I/O bandwidth offer the basis for this development", said Beckhoff. With this future in mind, countless exciting developments in New Automation Technology are to be expected.