

Interview with Hans Beckhoff  
about product innovations and trends

## Speed and openness in harmony



→ Even more open, even higher performance, even more diverse – this is how automation technology from Beckhoff presents itself today and into the future. In an interview with Managing Director Hans Beckhoff, Ronald Heinze, Editor-in-Chief of openautomation, explores the whole range of New Automation Technology and delves into details regarding the newest developments.

After this year's summer slump, which was felt by the entire automation industry, Beckhoff is on the rise again, as usual. "In October, incoming orders were back to normal numbers," Hans Beckhoff said. Also, Beckhoff managed to compensate for the summer slump with large orders from the wind energy industry. Beckhoff expects a 20% increase sales overall for 2008, which would equate to total sales between € 270 m and € 280 m (roughly between \$342 million and \$355 million). Growth was split evenly between Germany and abroad, with the current export share of the business at 44%.

### Double-digit growth strategy

The company's long term strategy continues to be based on double-digit growth rates every year. "We are optimistic that double-digit growth is achievable over the next 10 years, and in an organic manner," the managing director said. He is convinced that, notwithstanding slowdowns, the world economy overall, and the automation market in particular, will continue to grow. "The market for our technologies, such as PC-based automation, EtherCAT and local I/O products, is developing even more dynamically since more and more users recognize and utilize their inherent benefits." Despite certain challenges associated with the global financial crisis, Hans Beckhoff is not at all pessimistic for 2009 – on the contrary, he focuses on the benefits of globalization.

### Fast control technology based on standard components

The success of Beckhoff is to a large degree based on progressive technologies: two years ago, Beckhoff presented XFC ("eXtreme Fast Control Technology") – the fastest control technology based on standard components. "With XFC, we introduced a new performance class: the 100 microsecond ( $\mu$ s) generation." According to the managing director of Beckhoff, the market introduction was very well received by many users: XFC is in commercial use in a wide range of sectors, including packaging, metal forming, plastics engineering and drive technology applications. For the printing industry, XFC acts as a door opener for this dynamic market segment. According to Hans Beckhoff, there are signs that the XFC idea is understood across the board and Beckhoff regards it as a fundamental tech-

nology. XFC can be used as a technology standard: software optimization, specific hardware components and fast analog and digital I/Os form the system. In addition, a significant development is expected in the area of drive equipment based on XFC technology.

Hans Beckhoff: "XFC enhances the performance of machines as well as the process and energy efficiency, which in turn, results in environmental and economic benefits for the whole economy that should not be underestimated." According to Beckhoff, XFC therefore plays an important socio-political role: "Automation companies literally contribute to the progress of humankind."

The physicist sees further scope for improvement in the already market-leading I/O response time of 100  $\mu$ s: future developments will bring further improvements up to a factor of 5. "PC Control technology is very efficient and will continue to increase the performance limits and open up new application areas," Hans Beckhoff said.

### New processors for Industrial PCs with even higher performance

Industrial PCs in particular benefit from the developments in PC technology. New Intel® processors are a driving force for automation technology. With their low power dissipation, the cost-effective Atom™ processors enable automation technology to be rounded off at the lower end of the spectrum. At the SPS/IPC/DRIVES 2008 fair in Germany, Beckhoff will present the new CX5000 Embedded PC. According to Hans Beckhoff, this Embedded PC, the ultra-compact C6915 control cabinet PC and the Panel PCs from the CP62xx and CP77xx series, equipped with Atom™ processors, offer "great potential for optimizations, not least in terms of price, for many applications."

"Multi-core processors are more good news for automation," Hans Beckhoff said. "They represent a roadmap for further performance enhancements." One example is the C6640/C6650 control cabinet PC series with Beckhoff ATX motherboard and GM45 (Montevina) chipset. "With the Core™2 Quad processor, we currently cover the upper performance range," Beckhoff said. "This processor is designed for particularly 'performance-hungry' controllers used for synchronizing many axes, for example." According to Hans Beckhoff, the new Intel processor generation

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produces new thrust for automation. The Intel® roadmap leads to more and more processor power with decreasing power consumption, making the x86 world more and more diverse."

#### Software becomes even more open

The Scientific Automation concept continues to be pursued purposefully. "Scientific Automation complements the conventional areas of control technology such as PLC, Motion Control and control technology with precise and fast instrumentation and associated engineering algorithms."

What motivates a "dyed in the wool" automation company such as Beckhoff to get into instrumentation? "The performance of our PC Control philosophy offers sufficient reserve capacity for considering additional functions far beyond those handled by conventional control systems. Besides, we have already mastered the required basic technologies with high-performance CPUs, fast I/Os with measuring functions, fast EtherCAT and our TwinCAT software for signal processing." With this approach, Beckhoff seeks to create the prerequisites for signal acquisition and provide measurement solutions for the large group of PLC programmers in their familiar world: "We offer the basis for users to implement their own ideas. The aim is to take instrumentation out of its black box and into the PC." According to Hans Beckhoff, users have welcomed Scientific Automation with open arms. However, he does not regard Beckhoff as a competitor for established instrumentation providers: "The world of instrumentation is large and diverse, with little overlap."

TwinCAT already integrates a wide range of functionalities for Scientific Automation such as TwinCAT analysis, signal display and tracking with TwinCAT Scope. According to Hans Beckhoff, one of TwinCAT's key advantages is that it can correlate external and internal software-generated signals. "External instrumentation boxes can only handle external signals," Hans Beckhoff said. This limits flexibility.

The I/O terminals are also consistently complemented for these requirements. Solutions that have already become established include high-precision EtherCAT I/Os for temperature measurement or general analog value acquisition. A more recent addition is a digital voltmeter terminal for logging electrical parameters.

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"We are sure that our customers will utilize this terminal in a wide range of applications," Beckhoff said. Additional Scientific Automation terminals for converting physical signals into data words will follow.

#### EtherCAT in the fast lane

Meanwhile, EtherCAT has become a cornerstone for the success of Beckhoff technology. "EtherCAT is a standard technology that has become established worldwide and is used by well-known companies such as National Instruments." Many other renowned automation companies are testing EtherCAT at present. "It is fascinating to see how EtherCAT is gaining acceptance," Hans Beckhoff said. "The technology behind it has a magical attraction. It is comprehensible and the benefits are quickly identifiable. These are some of the factors that explain its already significant and growing market share."

According to Hans Beckhoff, a further advantage is that EtherCAT is a robust communication system that also fully supports TCP/IP communication. "The EtherCAT standard has not been modified since it was established. While other Industrial Ethernet variants went through various different (and not always compatible) versions and are, in some case, still or already going through a process of re-specification in order to meet market requirements and competitive pressures. EtherCAT users can rely on a robust technology that successfully took into account the relevant application areas right from the initial specification," Hans Beckhoff said.