

## NEWS

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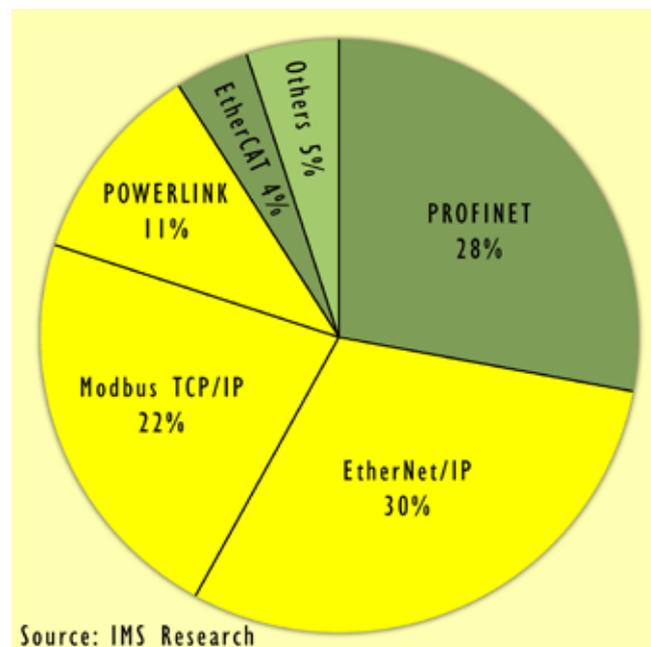
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## openSAFETY with great market potential

openSAFETY, the first open and fieldbus-independent safety protocol, has the potential of becoming the standard protocol for safety-oriented data transfer in automation networks. The open source software is interoperable with all Industrial Ethernet protocols.



Survey presents market shares of Industrial Ethernet systems:  
openSAFETY can be used in 63% of the applications already

Apart from openSAFETY over POWERLINK, the EPSG has implemented fully functional openSAFETY solutions based on Modbus TCP, EtherNet/IP, and SERCOS III, which will likely lead to a quick establishment and growth of the safety protocol on the market. A recent study by the renowned independent market research institute IMS Research examined the market shares of Industrial Ethernet systems. According to that, EtherNet/IP has the biggest share of the market at 30%, with PROFINET at 28% as a close second. 22% of the applications use Modbus TCP/IP. 11% use POWERLINK, a fieldbus protocol which is especially well-suited for hard real-time applications. All other systems together make up a share of 9%. The openSAFETY solutions existing to date already open up a potential share of 63% of the applications. Solutions for further Industrial Ethernet standards will follow. Thus, the software provides the chance of a common standard for safety systems, especially since the development of safety-oriented technology is very cost-intensive and manufacturers and plant operators can drastically reduce their development efforts thanks to openSAFETY.

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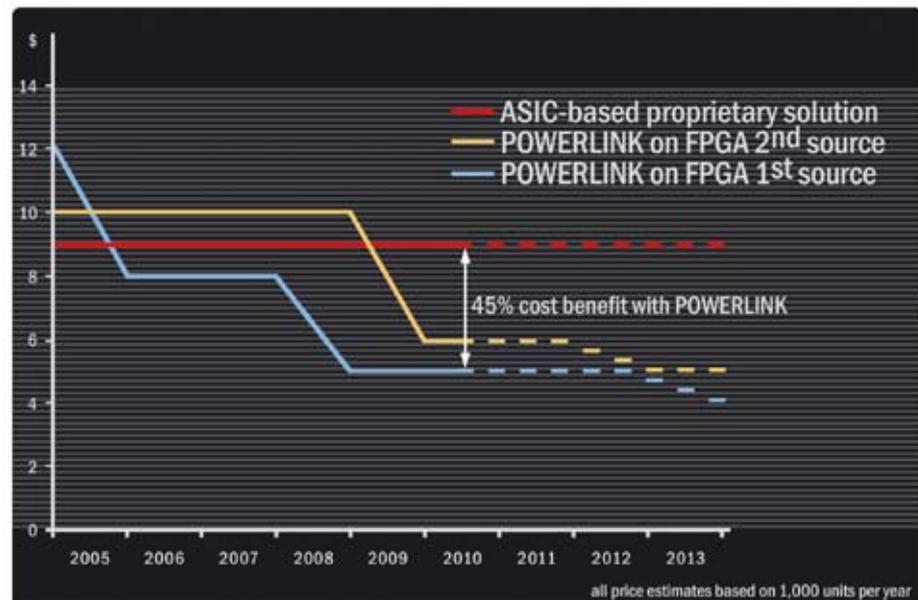
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## Industrial Ethernet: POWERLINK hardware offers best bargain

Hardware prices for POWERLINK Slave interfaces are up to 45% lower than those for other Industrial Ethernet systems, which offer a similar performance to POWERLINK, the most widely used hard real-time data transport protocol. Excluding those hardware components which are required for interfaces in all Ethernet systems, such as plugs, transformers, and PHY, processor-based POWERLINK solutions can currently be implemented for less than four euros.



Price comparison of proprietary ASIC-based Slave interfaces and open Slave solutions based on FPGA

FPGA solutions currently cost approximately five euros. POWERLINK interface prices are lower because the technology uses the single telegram procedure and is patent-free. Proprietary real-time Ethernet buses employ the sum frame procedure, which means that only one large data package is sent to all network devices per cycle. This requires more complex hardware than the standard Ethernet procedure employed by POWERLINK, which uses single telegrams for communicating with individual nodes. The protocol's openness and independence from specific manufacturers are additional advantages: POWERLINK does not require proprietary ASICs for hard real-time communication. POWERLINK is a pure software solution which is also available as an open-source version. Developers can implement the POWERLINK stack by themselves without the need for expensive patented interface solutions. They benefit from prices which decrease with every new generation of semiconductors while interface prices for proprietary solutions remain stagnant at an unchanged, high level. Interested parties who want to learn more about the lowest cost design for Industrial Ethernet can send inquiries to [implementation@ethernet-powerlink.org](mailto:implementation@ethernet-powerlink.org).

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## POWERLINK Implementation Workshop in Shanghai

POWERLINK is extremely popular with Chinese automation manufacturers, as large attendance numbers at the POWERLINK Implementation Workshop in Shanghai showed. More than 70 companies participated in the workshop on March 31<sup>st</sup>, 2010, among them renowned Chinese component manufacturers and industrial facility operators.



More than 70 companies attended the POWERLINK Implementation Workshop in Shanghai

A series of talks addressed various aspects of the technological implementation of POWERLINK networks. Professor Nicholas McQuire from the Distributed & Embedded System Lab at Lanzhou University talked about the implementation of POWERLINK and openSAFETY in real-time Linux environments. Lecturers further included experts from the Shenyang Institute of Automation (SIA), ALTERA, and B&R Automation, who addressed questions of network configuration, chip design for POWERLINK interfaces, and Master and Slave implementation strategies. Both the hosts and the participants judged the workshop a great success. The participating companies said that they favored POWERLINK as a protocol because of its high performance, its open source license, and the high availability of the corresponding hardware. Additional workshops in Shenzhen and Beijing are scheduled within the year.

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## 2nd European Industrial Ethernet Award goes to the technical university in Munich

A project group from TUM (the technical university in Munich) impressed the judges at the competition B&R held this year among European universities highlighting innovative ideas for POWERLINK technology. With their concept for configuring POWERLINK-based machines via Plug & Play, they demonstrated an extremely high level of technical ability and creativity, which the jury of experts from the fields of economics and research rewarded with the €10,000 prize money for first place. Second place went to a student group from the Czech Technical University in Prague for their thorough revision and improvement of an existing design for a juggling robot. They happily received €5,000 prize money for their contribution. The concept from the Austrian Academy of Sciences for using POWERLINK as an I/O network in a particle accelerator at the CERN nuclear research center achieved third place. The project group was awarded €2,500 prize money. The goal of the B&R-initiated "European Industrial Ethernet Award" is to provide a platform for promising scientific research projects in the area of real-time POWERLINK network technology, emphasizing on real-world applications, and also to promote cooperation with young technicians. This year, projects related to fieldbus networks, closed-loop control and robotics proved the importance of B&R's competition.



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