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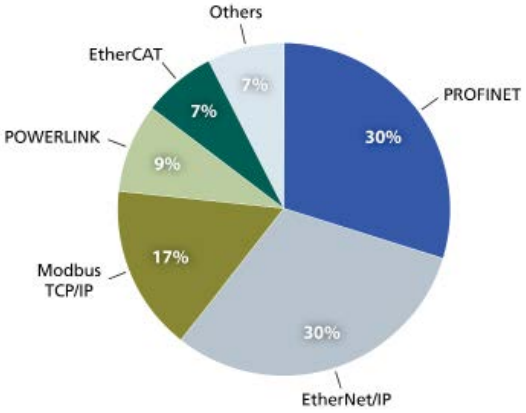
IMS Research Confirms Sustained POWERLINK Growth

POWERLINK is growing in significance. Its share of the overall industrial Ethernet market once again increased over the last year. POWERLINK has once more underscored its outstanding position as the leading industrial Ethernet system for hard real-time applications.

With a 9% share among all variants of Industrial Ethernet communication, POWERLINK currently ranks fourth, trailing only Profinet, Ethernet/IP and Modbus TCP/IP. This has been confirmed in a study recently published by IMS Research entitled "The World Market for Industrial Ethernet & Fieldbus Technologies – 2013 Edition".



A recent study by IMS Research shows POWERLINK with 9% in market share among all Industrial Ethernet varieties. Diagram © IMS Research

"The IMS study shows continuous and significant growth in market share for POWERLINK," says Stefan Schönegger, managing director of the Ethernet POWERLINK Standardization Group. "I am pleased to find that POWERLINK is enjoying a sustainable trend towards growth."

Extended Safe Robotics from B&R uses openSAFETY

B&R is relying on the fieldbus-independent openSAFETY safety protocol to implement extended "Safely Limited Speed (SLS) at the Tool Center Point (TCP)" safety functionality, a technology that allows the entire range of serial robot types to be monitored in the safety application. This represents a further extension of safety functionality available since 2011 that allows the safe monitoring of all joints on a six-axis articulated arm robot.

Implementing safe speed monitoring requires safe axis position information. This data is supplied by an ACOPOSmulti servo drive with integrated SafeMC safety functionality and transferred over the openSAFETY protocol.

Using the positioning information received, TÜV-certified SafeROBOTICS function blocks included in the safety application calculate the absolute velocity of all joints, the tool mounting flange and the TCP. The safety functions themselves are executed directly on the drives. In addition, openSAFETY allows users absolute freedom when it comes to selecting a control solution perfectly matched to all of the requirements of the application.

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This new extended functionality is based on a parameter block made available by B&R that can be used to configure virtually any kinematic chain whatsoever for generic serial robots. No longer restricted to certain types of robots, users are now free to define and configure their own customized kinematic solutions. Up to eleven separate joints can be defined, with the possibility to include up to 20 interlinked joints using directional couplers so that mechanical couplings can be incorporated between individual joints as well.

Open and bus-independent: The openSAFETY protocol gives users of SafeROBOTICS the freedom to choose the control solution that best fits the application.

POWERLINK at the 2013 Conference for ARM-based System Design

The 2013 ARM System Design Conference taking place in Munich on July 9, 2013, will feature a lecture detailing a POWERLINK implementation on ARM® Cortex™-A9 MPCore™ processor architecture using Xilinx® Zynq™-7000 devices.

ARM® technology is used in the hardware platforms preferred most by designers of embedded systems. One of the most important events in Central Europe for this field – the Conference for ARM-based System Design – will be taking place July 9, 2013, in Munich. This year's conference will feature a lecture jointly presented by Michael Zapke (XILINX) and Wolfgang Seiss (B&R) on implementations of POWERLINK on an ARM® Cortex™-A9 MPCore™ processor architecture using Xilinx® Zynq™-7000 devices.

Devices in industrial automation such as sensors, actuators and controllers are becoming more frequently interconnected over Ethernet-based networks. One of the most important requirements for this trend is the predictability of latency and jitter. The open-source protocol POWERLINK provides these characteristics in addition to being fully compliant to the IEEE 802.3 Ethernet standard. The joint XILINX and B&R lecture being given at this conference evaluates the use of Xilinx® Zynq™-7000 devices in industrial applications.

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This product range includes a dual-core ARM® Cortex™-A9 MPCore™ processor with ARM NEON™ technology – architecture that is optimally suited for critical POWERLINK real-time applications. It allows the full integration of the host processor running the application, a communication co-processor executing the network stack and additional Ethernet infrastructure components.

In their presentation, Zapke and Seiss will showcase two implementation concepts to highlight the design flexibility. While the network protocol was entirely implemented in software, some timing-critical components were also moved to the programmable logic to get the most out of the ARM Cortex-A9 cores. This results in optimally targeted solutions for the various requirements using this unique platform.

More information about the conference can be found here:
www.arm-entwicklerkonferenz.de.

Play & Win Prizes: The Industrial Ethernet Quiz

From July 9 to August 31, 2013, there will be a quiz on the web site of the Industrial Ethernet Book. Knowing the right answers to the questions centering around various aspects of Industrial Ethernet, participants can win attractive prizes.

Starting July 9, 2013, this is where to participate:
www.iebmedia.com/contest

Top prizes to win are an external 1.8“ SSD hard disk with 256 Gigabyte capacity and a USB 3.0 port, a remote controlled Silverlit Spy Cam II helicopter with a gyro and a camera, and a credit card sized BeagleBone Black Mini-PC with a TI Sitara™ AM335x ARM Cortex™ microprocessor.

The current secondedition of the Industrial Ethernet Facts contains all the answers to the questions of the Industrial Ethernet Book‘s online quiz.

To all those intending to read up on the required knowledge prior to participating, we recommend going through the Industrial Ethernet Facts the second, extended edition of which appeared this February. It is available for PDF download on www.ethernet-powerlink.org/IndustrialEthernetFacts2, and it can be ordered in print by E-mail to info@ethernet-powerlink.org.

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Yes we CANopen: 10 Years successful Partnership

For ten years, there has been a strong partnership between CAN in Automation (CiA) and the Ethernet Powerlink Standardization Group (EPSG). Since 2003, the two non-profit user organizations have jointly been making CANopen a very popular choice and a factor to reckon with in many market segments on CAN-based as well as Ethernet-based lower-layer protocols.

The partnership between CAN in Automation (CiA) and the Ethernet Powerlink Standardization Group (EPSG) started ten years ago in 2003. Since then, the two non-profit user organizations have jointly been making CANopen a very popular choice and a factor to reckon with in many market segments on classic CAN as well as Ethernet-based hardware lines.

CAN (Controller Area Network) is a serial bus system originally developed for automotive applications and internationally standardized in the ISO 11898 series. In total, some 800 million CAN interfaces will be sold this year. CANopen is a higher-layer protocol used on CAN and POWERLINK as well as other communication technologies for embedded control applications. It includes the application layer and the communication profile as well as application, device, and interface profiles. This internationally standardized interface (EN 50325-4) combines flexible configuration capabilities with an unparalleled degree of interoperability using standardized CiA profiles. Consequently, CANopen networks are used in a very broad range of application fields such as machine control, medical devices, mobile machines, rail vehicles, maritime electronics, building automation and power generation as well as countless embedded control systems.

CiA is committed to the CAN data link layer and the CANopen protocol. Currently, about 580 companies are members of this international users' and manufacturers' group registered in Nuremberg (Germany). "We see a bright future for CAN-based CANopen networks with their unique robustness and reliability also considering the improved CAN protocol (also known as CAN FD) that allows data rates up to 8 Mbit/s," said Holger Zeltwanger, CiA Managing Director. "At the same time, we cherish the strong partnership with the EPSG that brings the CANopen protocol to Industrial Ethernet applications."

When the specifications for the POWERLINK Industrial Ethernet protocol were drafted, its makers decided to use the CANopen application layer and profiles for guaranteed interoperability with the well-established standard. For applications requiring a higher communication bandwidth, this provides a smooth migration path and saves software investments dramatically compared to Industrial Ethernet solutions not adapting CANopen. "Users benefit from the strong partnership between EPSG and CiA," says EPSG Managing Director, Stefan Schönegger. "They can combine the stability and reliability of the CANopen protocol with POWERLINK's unparalleled performance."