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EPSG still going strong after 10 years

POWERLINK is celebrating a milestone birthday this year. It was ten years ago – back in 2003 – that the Ethernet POWERLINK Standardization Group (EPSG) was formed. This organization safeguards the vendor-independent openness of this advanced technology and promotes its use around the world. Since then, the user group has grown to include more than 3,000 equipment manufacturers from all areas of industrial automation.

For applications with hard real-time requirements

Due to its specific characteristics – particularly minimal jitter and top performance – POWERLINK is perfectly suited to industrial applications with hard real-time requirements. In addition, its communication management prevents collisions from occurring while ensuring uncompromising determinism.

The POWERLINK protocol was introduced at the SPS/IPC/Drives trade show in 2000 and was already being used in serial-produced machinery by the following year. In complex packaging machines with over 50 synchronized axes driven by servo motors, this new solution provided proof of its superiority over all fieldbus systems of the day.

In 2003, the Ethernet POWERLINK Standardization Group was established and the POWERLINK protocol extended to include CANopen. This provided several benefits for users as it enabled POWERLINK to use proven CANopen profiles that are supported by countless manufacturers.

Open-source software boosts growth

Five years ago, the POWERLINK stack was published as open-source software, facilitating another growth spurt of this advanced communication standard that has continued ever since. This is evidenced by more and more manufacturers who have been integrating POWERLINK into their products, including ABB, Baumüller, B&R, Danfoss, Infranor, KEB, Lenze, Nord Drivesystems, Schneider Electric and Yaskawa, to name just a few.



Since the EPSG was formed ten years ago, POWERLINK has proven both its suitability in industrial applications as well as its vendor-independence. During this period, this advanced Ethernet standard has convinced numerous manufacturers of its unparalleled performance.

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POWERLINK speeds up with Intel® controller

Ultra-low jitter is a key requirement for applications with dozens if not hundreds of synchronized axes to achieve top performance. Until recently, this requirement has not been supported by standard Ethernet controllers. The Intel® Ethernet Controller I210 is the first standard Ethernet controller to fully support POWERLINK with maximum performance. POWERLINK is a completely patent-free, vendor-independent and purely software-based communication system that delivers hard real-time performance.



The standard Intel I210 Ethernet Controller provides full support of POWERLINK timing requirements.

“The fact that a standard Ethernet controller from a leading semiconductor manufacturer provides support for POWERLINK now makes implementation of this real-time network even easier and less expensive”, says Stefan Schönegger, managing director of the Ethernet POWERLINK Standardization Group (EPsG). “It also provides proof of its true vendor-independence, particularly when compared with networks that require proprietary ASICs.”

With the Intel Ethernet Controller, POWERLINK node connections do not have to be implemented in programmable hardware, further supporting the concept of open technology based on standard components. Standard Ethernet controllers will always be less costly than any custom solution since they are manufactured in high volumes. This reduces the hardware expenditure necessary for implementing hard real-time POWERLINK solutions.

Or as Dawn Moore, general manager of the Intel Networking Division puts it: “POWERLINK users can achieve high performance and predictability at lower price points with the Intel Ethernet Controller I210. Our standard Ethernet controller eliminates the need for expensive custom controllers, and will help customers enable POWERLINK solutions more quickly and cost-effectively.”

With an extremely small footprint of 64-pin 9x9 mm QFD package, the Intel Ethernet Controller I210 reduces board size requirements. This adds to its cost reduction potential and makes implementing POWERLINK more viable in small field devices with limited space.

Find out more in a solution brief published by Intel: <http://www.intel.com/content/www/us/en/ethernet-controllers/ethernet-powerlink-industrial-automation-brief.html>

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port POWERLINK-Stack for TI Sitara AM335x Cortex A8

Drivers for POWERLINK are now available for the Sitara™ ARM® Cortex™-A8 AM335x microprocessors from Texas Instruments. The drivers are based on industrial communication stacks and tools provided by port. Using the Sitara AM335x together with port's stacks & tools, a wide range of applications for global markets can be realized today and have the option to be upgraded to new technologies at a later date.



"We are delighted to be working with port," says Elizabete de Freitas, EMEA Marketing Manager Industrial Solutions at TI. "Combining port's expertise in the field of real-time communication standards and the portfolio of highly integrated processors from TI means a complete system solution for customers of the industrial automation market."

From port, one of the leading suppliers of communication technologies for CAN/CANopen, a POWERLINK stack for the Texas Instruments Sitara™ ARM® Cortex™-A8 microprocessors AM335x is available.

The design tools offered for POWERLINK support the user integrating the stack reducing development times and costs significantly. Up to 45 days after purchase the customer will receive free support by port. Beyond this period of time, flexible maintenance contracts are available. They provide port customers with free support following these 45 days as well as all updates that become available during the period of a maintenance contract.

July 02 & 03, 2013: POWERLINK Certification/Plugfest

During the EPSG Plugfest, interoperability of POWERLINK devices from different manufacturers was verified.

Certification assures the quality of your product and is the key to maintain the openness and interoperability of the technology. During the EPSG Plugfest at B&R headquarters in Eggelsberg, Austria, on July 2-3, the Yaskawa V1000 frequency converter or the decentralized input and output modules from the Crevis FnIO S-Series were certified and connected in various network configurations. Among the participants to this Plugfest that ensures problem-free communication between different POWERLINK devices, consequently proving their suitability for integration in any machine manufacturer's system, were also Texas Instruments with the Sitara ICE board utilizing the POWERLINK stack from port and Kunbus with their POWERLINK development board, Kunbus.com.

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Laumas TLB: Fast weighing processes with POWERLINK

Automated production processes with high outputs make fast as well as exact weight determination a necessity. In the interest of traceable quality and a high process stability, more and more partial or interim weighings are performed within production processes.

With the TLBPOWERLINK from Italian manufacturer Laumas, a complete, calibratable weighing instrument has become available that performs an extremely fast weight determination with top precision and without influences by mechanical or electromagnetic interferences. Thanks to advanced electronics, the instrument designed for line-up mounting on an Omega DIN Rail is only 22 mm wide. In addition to numerous other interfaces, it features an integrated POWERLINK port facilitating the fast data exchange required in demanding weighing applications.



The compact as well as universal weighing instrument TLBPOWERLINK by Laumas features a POWERLINK port for fast data exchange.

The virtual safety solution

SafeLOGIC-X from B&R eliminates the need for extra safety controller hardware by distributing safety functions across hardware components that already exist on the network.

SafeLOGIC-X from B&R now brings all the advantages of integrated safety technology to small, cost-sensitive applications as well. This solution covers it all – from safe I/O and drive technology to integrated diagnostics, safe line integration and safe machine options.

The SafeLOGIC-X solution is programmed using the SafeDESIGNER editor in Automation Studio, just like the hardware-based SafeLOGIC solution. This means that when a system outgrows its SafeLOGIC-X solution, it is no trouble at all to switch to a dedicated SafeLOGIC controller by simply reconfiguring the safe application, which doesn't require recertification.

This type of unlimited scalability guarantees system continuity from the start while ensuring a uniform approach to engineering and diagnostics – two factors vital to increasing the availability of systems and machines.

SafeLOGIC-X is solely a software-based solution; extra safety controller hardware is not needed. All safety functionality is distributed across existing hardware components on the network. This is made possible by the openSAFETY standard.