

And the front runner is... EtherCAT!

By Thomas Kelly

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Copperhill Media has created an Online survey to shed a light on the market's preferences on fieldbus technologies. So far more than 160 engineers have contributed to the current result, which favors EtherCAT over Ethernet/IP.

The use of distributed control, a.k.a. fieldbus systems, has become increasingly important not only for all kinds of industrial applications and automation tasks, but also for medical, maritime, avionic and military devices. Any fieldbus system will save costs over centralized control by reducing wiring, increasing reliability and improving maintainability.

One fieldbus system in particular, Controller Area Network (CAN) including higher layer protocols based on CAN such as CANopen and DeviceNet, is still an increasingly popular choice for the North American market due to its high level of data transfer reliability. CAN was originally designed for use in automobiles, but quickly found its way into any application where microprocessors need to communicate with each other and that can include small-sized applications such as medical devices up to complex tasks as robotics or satellites.

According to Wilfried Voss, author of 'A Comprehensible Guide to Controller Area Network' (See <http://www.copperhillmedia.com/CANBook.html>): "During the years, since the publication of the CAN standard in 1986, there has been the quest to create and establish better and faster field bus technologies, but none of them has managed to replace CAN as of yet and it will stay that way until new technologies will be able to match the excellent price over performance ratio of CAN."

The automobile industry is currently exploring and, to some degree, using systems such as FlexRay, LIN and Time-triggered CAN, however, when it comes to industrial automation the main focus is definitely on Ethernet-based technologies. Ethernet supports a data rate of up to 100 Mbits/sec, but does lack the real-time capabilities and very short error recovery times of CAN. These short-comings have been resolved with the emergence of industrial Ethernet based protocols.

Dr. Werner Schulze, Managing Director of esd electronics in Germany, considers the CAN 1 MBit/sec baud rate only a marketing problem, not a technical problem: "Just because we are able to build a race car does not mean you'll do your shopping in it, does it? You still see people doing their everyday business in regular cars, and it will be like this in the future, too. I believe, it's the same with CAN and Ethernet."

A current problem with Ethernet-based fieldbus technologies is the great number (currently 20+) of available protocols, including Powerlink, Ethernet/IP, EtherCAT, Modbus/TCP, ProfiNet, and more, just to name the most popular (or better: most promoted) choices. It is nevertheless safe to predict that the use of Ethernet-based protocols will increase significantly in the years to come, but only a few choices will prevail.

"CAN will remain popular in large vehicle applications", predicts Wilfried Voss, "especially due to the strength of the SAE J1939 protocol and activities such as the British 'Future Rapid Effects System' (FRES) for military vehicles, which uses MilCAN. Ethernet technologies will begin to conquer the automation market slowly, starting with applications that benefit from high-speed processing, for instance, robotics. I believe that Ethernet/IP will play a strong role in the North American market. European technologies like Powerlink and EtherCAT will have some share of the market, but as long as the Ethernet-Powerlink

Specification Group (EPSG) is not able to adjust their marketing activities for the North American market, I would favor EtherCAT. The EtherCAT Technology Group, with office in the US, seems to understand the importance of the North American market.”

Copperhill Media Corporation, the leading publisher of technical literature on CAN technologies, has now created an Online survey to shed a light on the market’s preferences. As of September 9, 2008 more than 160 engineers have contributed to the current result, which favors EtherCAT (40%) over Ethernet/IP (33%). Everybody, engineer and manager, is invited to cast a vote. The voting process takes literally only seconds and it does not involve the collection of personal data. The result will be updated immediately.

To vote log on to <http://www.copperhillmedia.com/Vote.html>.

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Copperhill Media Corporation is a publisher of technical literature with special interest in Controller Area Network, CANopen and SAE J1939.

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