

TSN technology endorsed by industrial automation leaders

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By enabling convergent communications at the core of Industry 4.0 applications, Time-Sensitive Networking (TSN) is being regarded by market leaders as a must within the Connected Industries of the future. With a rapidly growing demand for the technology, the number of industrial automation vendors offering TSN-compatible devices continues to grow.

TSN is an update to standard Ethernet that ensures inherent determinism through a number of IEEE 802.1 specifications. When looking at industrial Ethernet, two of these standards emerge as key to drive Industry 4.0 applications, IEEE 802.1AS and IEEE 802.1Qbv, which handle time synchronization and traffic scheduling, respectively.

Together, these functions provide deterministic performance, making it possible to share multiple types of data traffic on the same network, driving convergence and the merge of information technology (IT) and operational technology (OT). Thomas Rodenbusch-Mohr, Product Manager at Belden, explains: “TSN is standardized within the IEEE, making the technology extremely important, in my opinion. Secondly, you can do real-time applications based on this open standard, so you don’t need to be locked into a proprietary ecosystem. Finally, you can save on infrastructure costs because you can run IT and OT traffic on the same network without disturbing your critical control data packets, for example.”

Driving the large-scale adoption of TSN

In order to deliver competitive products and help customers fully reap the benefits of TSN, industrial automation vendors have been developing a variety of devices that leverage the technology. When it comes to implementing it, the market leading solution is CC-Link IE TSN, the first open industrial Ethernet combining gigabit bandwidth and TSN functions.

Simon Seereiner, Head of Product Management SAI & IE at Weidmüller, comments on the drive towards the launch of CC-Link IE TSN compatible devices: “TSN is an exciting technology, specifically for real-time deterministic communications. We, at Weidmüller, started very early to work together with the CLPA on the implementation of the necessary requirements for TSN communications and connectivity. Together with the organization, we have certified the full range of RJ45-based patch cables as well as field attachment connectors.”

Masaki Kawazoe, Director Commercial Marketing Factory Automation at Mitsubishi Electric, agrees on the value of the TSN technology and the gains achievable through convergence: “Mitsubishi Electric has already a lot of existing solutions compatible with CC-Link IE TSN. Customers can easily integrate all our products and CLPA’s partner products together. They can also have these devices communicate with the IT level through TCP/IP communications on the same one network. Customers can also integrate safety solutions on this network. This is very powerful and beneficial to customers.”

The need for devices that can leverage TSN is also felt by end users, as Sascha Lambauer, Strategic Product Manager at Weidmüller, adds: “Weidmüller is working together with the CLPA and, of course, our customers are pushing us in this direction because TSN can enable the next level of production and is definitely needed in the

market.” In fact, there are already more than 50 companies worldwide in the manufacturing and processing sectors, that are taking advantage of TSN to advance their operations.

Selecting the right partnership and technology

In addition to being the first network technology with TSN functions on the market, CC-Link IE TSN is being selected by industrial automation vendors for the extensive development support offered. Jan Aulenberg, Product Manager at Phoenix Contact, elaborates on this: “The biggest beneficiaries of the collaboration with the CLPA is the customer, because with the conformance test certification that the CLPA is offering for CC-Link IE TSN, it is always guaranteed that the endorsed products are fulfilling all the requirements of a CC-Link IE TSN network.”

Ultimately, it is important for forward-looking industrial automation companies to start their implementation of TSN now. Chih-Hong Lin, Global Technology Partner Manager at Moxa Europe GmbH, concludes: “TSN will become the unified and real open communications infrastructure for next-generation communications. CC-Link IE TSN is, from our point of view, one of the major industrial control protocols on the market. It is also one of the most advanced technologies and we are very happy to cooperate with the CLPA to drive the adoption of this new technology.

“This is why we think the collaboration with the CLPA on CC-Link IE TSN has high potential and a very bright future. I would encourage every company in the automation sector to join the CLPA so that we can work together as a team to provide the best mature and cost-effective solutions to our customers.”



Currently, there are over 120 CC-Link IE TSN certified devices available to create a comprehensive solution for machine builders and end users looking to build next generation industrial automation technology into their systems.

Image captions:



Image 1: With a rapidly growing demand for Time-Sensitive Networking technology, the number of industrial automation vendors offering TSN-compatible devices continues to grow.

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About The CC-Link Partner Association (CLPA)

The CLPA is an international organization founded in 2000, now celebrating its 20th Anniversary. Over the last 20 years, the CLPA has been dedicated to the technical development and promotion of the CC-Link open industrial network family. The CLPA's key technology is CC-Link IE TSN, the world's first open industrial Ethernet to combine gigabit bandwidth with Time-Sensitive Networking (TSN), making it the leading solution for Industry 4.0 applications. Currently the CLPA has over 4,100 corporate members worldwide, and more than 2,000 compatible products available from over 370 manufacturers. Around 38 million devices using CLPA technology are in use worldwide.

Anyone interested in joining the organization can apply here: <https://www.cc-link.org/en/clpa/members/index.html>

Press contact:

CC-Link Partner Association Americas

Thomas Burke

Global Strategic Advisor

Tel.: (847) 478-2100

tom.burke@cclinkamerica.org

PR agency:

DMA Europa

Chiara Civardi

Progress House, Great Western Avenue, Worcester,

WR5 1AQ, UK

Tel.: +44 (0) 1905 917477

chiara.civardi@dmaeuropa.com

news.dmaeuropa.com