



Ease of Design for OEMs to Connect Automotive Devices with New 10BASE-T1S Ethernet Solutions

The new family of LAN8650/1 MAC-PHY devices connects low-cost microcontrollers without a built-in Ethernet MAC to a 10BASE-T1S Ethernet network

CHANDLER, Ariz., September. 14, 2023 — Automotive designers are creating new zonal architectures in automotive applications with 10BASE-T1S Ethernet solutions. The 10BASE-T1S technology makes it possible for low-speed devices to connect to a standard Ethernet network, eliminating the need for dedicated communication systems. Expanding its portfolio of automotive-qualified Ethernet solutions, Microchip Technology (**Nasdaq: MCHP**) today announces the new family of [LAN8650/1 MAC-PHY devices](#) qualified for automotive applications. The LAN8650 and LAN8651 MAC-PHYs include a Media Access Controller (MAC) and Serial Peripheral Interface (SPI) to connect devices at the edge of automotive networks.

The LAN8650/1 devices with a built-in MAC and SPI enable designers to connect 8-, 16-, and 32-bit microcontrollers that do not have a built-in Ethernet MAC to 10BASE-T1S Single Pair Ethernet (SPE) networks. This allows sensors and actuators that interface between the digital and the real world to become part of an all-Ethernet architecture. Connecting to even the simplest MCUs can reduce the overall size and cost of a design.

“Microchip continues to develop automotive connectivity solutions with its line of 10BASE-T1S products, providing the industry with turnkey solutions that meet customers’ requirements,” said Matthias Kaestner, corporate vice president of Microchip’s automotive business. “This new technology will connect sensors and actuators in the physical world all the way to the cloud, enabling a seamless Ethernet architecture in vehicles, which in turn reduces development effort and time to market.”

These devices are equipped with Time-Sensitive Networking (TSN) support, which allows for synchronized timing across far-reaching Ethernet networks. This time synchronization is critical for many automotive applications such as Advanced Driving Assistance Systems (ADAS).

The automotive-qualified LAN8650/1 are compliant with the AEC-Q100 Grade 1 qualification standard for enhanced robustness in harsh environments, including extended operational temperature range from -40°C to 125°C. In addition, the LAN8650/1 are functional safety ready and designed for use in ISO 26262 applications.

Ethernet solutions continue to gain momentum in the automotive industry because of the well-established security protocols for keeping network systems secure. These systems can be extended to the edges of the network without needing extensive changes or new development.

To learn more about Microchip's SPE solutions, click [here](#).

Development Tools

The LAN8650/1 MAC-PHYs are supported with a set of network analysis tools, the [LAN8651 SPI Evaluation Board](#) and [MPLAB® Harmony 3](#) to help with the design process.

Pricing and Availability

The LAN8650/1 MAC-PHYs are available to purchase now. Contact a Microchip sales representative, authorized worldwide distributor or go to Microchip's Purchasing and Client Services website, www.microchipDIRECT.com.

Resources

High-res images available through Flickr or editorial contact (feel free to publish):

- Application image: www.flickr.com/photos/microchiptechnology/53121522571/sizes/

About Microchip Technology:

Microchip Technology Inc. is a leading provider of smart, connected and secure embedded control solutions. Its easy-to-use development tools and comprehensive product portfolio enable customers to create optimal designs which reduce risk while lowering total system cost and time to market. The company's solutions serve more than 125,000 customers across the industrial, automotive, consumer, aerospace and defense, communications and computing markets. Headquartered in Chandler, Arizona, Microchip offers outstanding technical support along with dependable delivery and quality. For more information, visit the Microchip website at www.microchip.com.

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Supporting photographs supplied

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