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Marvell Launches Industry's First 802.1AE MACsec Integrated Dual 1000BT1 and 100BT1 PHY Automotive Solutions

Marvell extends its automotive leadership with the newly announced Brightlane™ PHY products

SANTA CLARA, Calif., Dec. 2, 2021 /PRNewswire/ -- Marvell (NASDAQ: MRVL) today introduced the industry's first 802.1AE MACsec integrated dual 1000BT1 and 100BT1 PHYs. The newly announced products extend Marvell's leadership in automotive Ethernet PHY while aiding OEMs in the transition toward software-defined vehicles, where secure communication of data is a critical requirement. These Ethernet PHY solutions enable energy efficient, secure in-vehicle networks and assist in achieving functional safety compliance at the system level.



MACsec technology secures data exchange on a hop-by-hop basis and prevents Layer 2 security threats such as intrusion, man-in-the-middle, and replay attacks. Automotive networks rely heavily on partial networking in which some segments are hibernated and woken up on demand. Marvell's latest PHYs support the Open Alliance TC10 for sleep mode and wake-up, tailored for automotive use cases. TC10 control signals are sent over the data line and minimize the need for special cables for remote control of the PHY states. Rapid electrification of vehicles has resulted in reduced power budget for each component.

Marvell's new dual 1000BT1 88Q2233M with MACsec and 100BT1 88Q120xM with MACsec are the latest additions to the Brightlane PHY automotive portfolio. With the introduction of these groundbreaking solutions, Marvell achieves several industry firsts, including the first to launch an 802.3bp compliant dual 1000BT1 PHY with MACsec integrated, and the first to launch an 802.3bw compliant 100BT1 PHY with MACsec integrated.

"The launch of 88Q2233M and 88Q120xM underscores Marvell's commitment to developing innovative solutions for the automotive market and ushers in a new era of software-defined vehicles," said Will Chu, senior vice president and general manager of the Automotive Business Unit, Marvell. "Ethernet adoption is growing at a rapid pace, with future vehicle designs requiring multiple gigabit PHYs. Our new solutions seamlessly solve the issue of space constraint by integrating two 1000Base-T1 in a single package. The products also reduce the total BOM cost as many of the external components are common for the two 1000Base-T1 PHYs."

"Marvell's new MACsec integrated dual 1000BASE-T1 and 100BASE-T1 PHYs are helping solve a critical requirement of secure communication for a new generation of software-defined vehicles," said Ian Riches, vice president for the Global Automotive Practice, Strategy Analytics. "With this launch, Marvell is staking a leadership position in secure automotive Ethernet while helping tier ones and OEMs build smarter, safer and greener vehicles of the future."

As automotive networks are required to work in noisy environments, devices must be able to work together without interference. All components on the network should meet the electromagnetic interference/electromagnetic compatibility (EMI/EMC) requirements in accordance with the [Open Alliance TC1 and TC12](#). As Marvell's third-generation automotive ethernet PHYs, 88Q2233M and 88Q120xM are built on proven automotive architectures that deliver best-in-class EMI/EMC performance.

Key Features:

- **88Q2233M: Dual 1000BASE-T1, IEEE 802.3bp-compliant** Ethernet PHY supports operation over unshielded twisted pair (UTP)
- **88Q120xM: 100BASE-T1, IEEE 802.3bw-compliant** Ethernet PHY supports operation over unshielded twisted pair (UTP)
- **Supports IEEE 802.1AE MACsec:** Support MACsec that provides layer 2 security and prevents security threats such as intrusion, man-in-the-middle, and replay attacks
- **Supports OPEN Alliance TC10 Sleep Mode:** Support TC10 fast wake-sleep mechanism to enable partial networking
- **802.1AS, 802.1AS-Rev PTP:** Support precision timing protocol that enables extremely precise time synchronization of networks
- **Integrated Voltage Regulators:** Support single 3.3V supply mode and saves overall BOM cost
- **ASPICE Level 2 software:** Enables faster time-to-market with reuse of a flexible API and robust solution

Availability:

The Marvell [88Q2233M](#) and [88Q120xM](#) are currently sampling along with their development boards.

About Marvell

To deliver the data infrastructure technology that connects the world, we're building solutions on the most powerful foundation: our partnerships with our customers. Trusted by the world's leading technology companies for 25 years, we move, store, process and secure the world's data with semiconductor solutions designed for our customers' current needs and future ambitions. Through a process of deep collaboration and transparency, we're ultimately changing the way tomorrow's enterprise, cloud, automotive, and carrier architectures transform—for the better.

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