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Marvell Introduces Industry's First 5nm Multi-Gigabit PHY Platform

- *5nm multi-gigabit copper Ethernet PHY platform based on a new architecture to deliver dramatic reductions in power.*
- *Alaska[®] M 3610, the first chip based on the platform, reduces PHY power by more than 50% while delivering up to 10 Gbps of bandwidth for Wi-Fi 7.*
- *The product is the first in a portfolio of 5nm products from Marvell to enable higher bandwidth and energy efficient enterprise networks.*

SANTA CLARA, Calif., Aug. 16, 2023 /PRNewswire/ -- [Marvell Technology, Inc.](#) (NASDAQ: MRVL), a leader in data infrastructure semiconductor solutions, today introduced its technology platform for [5nm multi-gigabit copper Ethernet PHYs](#) to enable enterprise network equipment manufacturers and others to meet the exacting energy efficiency and performance targets of next generation multi-gigabit network technologies such as Wi-Fi 7.

A critical technology found across data infrastructure networks, PHYs handle the transfer of digital data between the copper, fiberoptic and wireless systems that collectively make up today's networks. Any given packet will likely pass through a multitude of PHYs during a single transmission through a network. Innovations in PHY technology are critical to deliver the enhanced bandwidth, reach, link performance, and security required by the exponentially growing interconnect needs of the modern data infrastructure.

Marvell's 5nm multi-gig PHY platform is based around optimized circuit designs, custom digital logic, enhanced DSP algorithms and other innovations to deliver 10 Gbps performance at half the power of previous generation devices from Marvell. The platform will serve as the building block for additional standalone PHYs, integrated SoCs, and [custom ASICs](#) optimized for specific markets and applications.

Reducing PHY power consumption gives equipment manufacturers greater flexibility in product design: heat sinks and fans can be reduced in size or eliminated, a greater portion of the power envelope can be redirected to other features to boost performance, and/or overall power can be reduced to help end users meet sustainable IT goals. A leader in multi-gigabit PHYs with four generations of PHYs already in production, Marvell's Alaska M multi-gigabit PHYs and the [Presteria[®] 2500, 3500, and 4500 series switches](#) have been purpose-built to accelerate the multi-gigabit transition in enterprise networks.

"PHYs are a necessary ingredient of digital networks and Marvell is a leading supplier of this technology," said Joseph Byrne, Editor in Chief of Microprocessor Report. "Innovations like this will play an important part in ensuring access points and other edge devices can continue to increase in performance and capacity."

Breakthrough PHY Performance for Wi-Fi 7

[The Alaska M 3610 Ethernet PHY](#), the first chip based on the new platform, is a single port multi-gigabit PHY to enable the multi-gigabit backhaul links for improving Wi-Fi performance.

Wi-Fi 7 will provide over four times the maximum aggregate data rate of Wi-Fi 6 and 6E and nearly seven times the rate of Wi-Fi 5, a leap in performance that will enable more reliable connections and emerging applications such as augmented reality.

The increased data throughput supported by Wi-Fi 7 will require multiple backhaul links with PHYs operating at speeds up to 10 Gbps. Delivering that bandwidth will demand a transformative improvement in the performance and power efficiency of the backhaul links connecting Wi-Fi access points to the rest of the network. Consuming under 1W, Alaska M 3610 enables manufacturers to meet these performance goals for the adoption of Wi-Fi 7.

Wi-Fi 7 enterprise access point shipments are expected to grow from a few thousand shipments this year to over 13 million by 2027 and constitute the largest segment of enterprise Wi-Fi¹. This upgrade cycle will accelerate the conversion of enterprise access networks from 1 Gbps to multi-gigabit speeds.

"This is the first time in over a decade that we've seen more than a doubling of bandwidth in Wi-Fi. It's exciting," said Chris DePuy, co-founder of 650 Group, adding that Wi-Fi 7 access points should begin shipping in late 2023/early 2024 and constitute approximately 40% of unit shipments of Wi-Fi enterprise access points by 2027.

The Alaska M 3610 also includes IEEE 802.1AE 256-bit hardware-based link-layer Media Access Control (MACsec) for flexible encryption deployment while eliminating the cost and power burden of including this functionality in an access point's system-on-chip. MACsec is critical to a layered enterprise security implementation by providing end-to-end protection across a connection to prevent attacks such as denial-of-service, man-in-the-middle, masquerading, and passive wiretapping.

"Our first to market new 5nm multi-gigabit copper PHY platform delivers a leap in performance and capabilities over those found on the market today," said Venu Balasubramonian, vice president of product marketing, High Speed Connectivity and PHY Business Unit at Marvell. "PHY innovation is absolutely essential for meeting the bandwidth demands of AI, AR, remote work and other high-bandwidth applications. Marvell has made a strong commitment to PHY development and to maintaining a leadership position in this technology area to deliver solutions that address the emerging needs of our customers."

Availability

The Marvell 5nm Alaska M 3610 10 Gbps Ethernet PHY is sampling now to select customers.

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 over 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.

1. 650 Group

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