

June 17, 2025



Marvell Introduces Optimized Integrated Power Solutions to Boost Performance, Efficiency, and ROI of Accelerated Infrastructure

- *Marvell accelerates chip-level power delivery systems with pre-validated integrated power solutions*
- *Optimized integrated power solutions increase power delivery to XPU's and other devices for better performance and TCO*
- *Up to 2X higher current density and 85% reduction in transmission losses, for final voltage conversion, enabling higher performance and efficiency for processors and infrastructure*

SANTA CLARA, Calif., June 17, 2025 /PRNewswire/ -- [Marvell Technology, Inc.](https://www.marvell.com) (NASDAQ: MRVL), a leader in data infrastructure semiconductor solutions, today announced its Package Integrated Voltage Regulator (PIVR) power solutions, transforming power delivery systems and enabling hyperscalers to enhance the performance, efficiency and return on investment (ROI) of AI and cloud infrastructure.

The pre-validated power solutions effectively allow system designers to accelerate the shift from today's board-level power delivery systems—discrete subsystems made from several components typically situated several inches away from the processor on a printed circuit board—to smaller, faster, integrated silicon chips and passives tightly coupled with the processor. The smaller size, closer proximity, and higher performance provide a foundation for developing 4+ kilowatt compute platforms, a leap in power delivery that hyperscalers can utilize to dramatically elevate computing operations in racks or data centers.

The Marvell® PIVR power solution enables multiple infrastructure optimizations. This solution controls the flow of electricity to a semiconductor, reducing the comparatively high voltages from power supplies to the sub-1V levels consumed by today's advanced processors, filtering the electrical wave form, and strictly controlling voltage levels. Shortening the final low-voltage/high-current portion of the power delivery path can reduce transmission losses by up to 85% with improved voltage regulation. The compact size saves board space and lowers overall system costs. Featuring higher power densities (3-4 amperes per sq. mm.) compared to typical solutions (1.5-2 amperes per sq. mm), this solution also supports greater compute density. Additionally, it enhances dynamic voltage scaling, enabling real-time power tuning to minimize losses.

"Placing IVR under, near, or inside the package delivers greater performance and greater efficiency at the same time—an extremely challenging feat — while giving cloud operators greater flexibility when it comes to developing or optimizing their infrastructure," said Will Chu, senior vice president and general manager of Custom Cloud Solutions at Marvell. "PIVR also underscores the performance and power gains that can be achieved through

custom silicon. We are thrilled with our close collaboration with our partners and look forward to working with them to continue to bring pre-validated PIVR solutions to our custom XPU customers and further build on the momentum for custom technology."

"Integrated voltage regulation opens the door to several system-design benefits in the kilowatt-chip era that began with the escalating power demands of AI processors," said Joseph Byrne, principal at Xampata Insights. "Marvell's pre-validated IVR power solution helps ease adoption of these high-performance chips and ameliorate power issues facing hyperscalers."

Ecosystem Quotes

"As power consumption in AI data centers continues to rise, Infineon continues to innovate on power delivery architectures and technologies that enable power delivery as close to the processor as physics allow," said Athar Zaidi, senior vice president and general manager, Power ICs and Connectivity Systems, Power and Sensor Systems Division, Infineon Technologies. "Infineon is excited to collaborate with Marvell to develop efficient and scalable Integrated Voltage Regulators using high density power modules. Infineon's thin vertical trench technology coupled with state-of-the-art low-parasitics packaging along with Marvell's expertise in custom GPU designs, can increase current density to make IVR a reality. Together both companies are focused on increasing compute performance and reducing total cost of ownership (TCO) for data centers."

"MPS is excited to collaborate with Marvell on IVR power solution that will enable the next generation of innovation in AI and cloud infrastructure platforms," said Maurice Sciammas, executive vice president, Worldwide Sales and Marketing, MPS. "Like Marvell, MPS is committed to advancing the data center power ecosystem through breakthrough technologies, solving the industry's most complex challenges, and delivering on aggressive timelines. We look forward to being part of a transformational power delivery system that meets the unique needs of large-scale cloud operators."

"Empower's Finfast technology has uniquely enabled the adoption of vertical power delivery for hyperscalers with the density, efficiency, thermals and speed required by AI processors," stated Tim Phillips, CEO, Empower Semiconductor. "The collaboration with Marvell accelerates our lead and pushes us even further, bringing the inevitable chip-level power to the heart of tomorrow's multi-kilowatt-class compute engines."

"Endura Technologies is redefining power delivery for the AI era with a unique, agnostic digital architecture that scales with advanced process nodes to meet the growing demands of tomorrow's AI factories," said Dr. Massih Tayebi, CEO, Endura Technologies. "Our collaboration with Marvell enables seamless integration into next-generation 2.5D and 3D AI system architectures. Our current platform delivers industry-leading current density, transient response, minimal voltage droop, and ultra-low ripple. We're not just supplying power; we're fueling the future of artificial intelligence."

"Ferric is thrilled to collaborate with Marvell in providing pre-validated IVR to their XPU customers," said Noah Sturcken, CEO, Ferric. "This collaboration will enable significant advancements in power density and energy efficiency, ultimately leading to crucial improvements in performance and total cost of ownership. Our collaboration with Marvell provides a streamlined path for integrating Ferric IVRs into some of the most sophisticated and power-hungry processors ever made. Ferric IVRs deliver exceptional power density,

conversion efficiency, and regulation performance to alleviate power bottlenecks that would otherwise constrain the performance of these processors."

"AI computing performance is ultimately limited by two critical factors: power delivery and thermal management. That's why Photeon is proud to collaborate with Marvell to pre-validate IVR at a system level that deliver the efficiency, thermal reliability, and scalability required for next-generation AI architectures," said Thomas Loruenser, CEO, Photeon Technologies GmbH. "Photeon's Integrated Core Power (iCP) technology doesn't just revolutionize AI power, it redefines the future of XPU power delivery. By pioneering a true vertical power delivery paradigm at unmatched current densities, iCP together with Marvell unlocks next-level performance optimized for hyperscale AI computing."

Marvell Custom Strategy

The Marvell custom platform strategy seeks to deliver breakthrough results through unique semiconductor designs and innovative approaches. By combining expertise in system and semiconductor design, advanced process manufacturing, and a comprehensive portfolio of semiconductor platform solutions and IP—including electrical and optical serializer/deserializers (SerDes), die-to-die interconnects for 2D and 3D devices, silicon photonics, co-packaged copper, custom HBM, system-on-chip (SoC) fabrics, optical IO, and compute fabric interfaces such as PCIe Gen 7— Marvell is able to create platforms in collaboration with customers that transform infrastructure performance, efficiency and value.

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.

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