onsemi Introduces the Embedded Power Platform, a Breakthrough Architecture for the AI Era

September 16, 2026

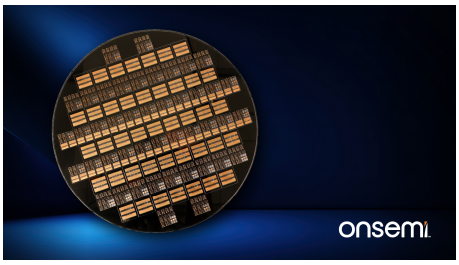
Platform uses silicon wafer itself as the package and introduces a highly integrated approach to power system design across automotive, industrial, and AI data center markets

Summary: onsemi today unveiled the Embedded Power Platform (EPP), redefining system power delivery through unprecedented power density and integration of multiple dies into a single silicon device. By jointly optimizing electrical, mechanical and thermal performance within a single architecture, EPP enables up to 3 – 5x higher power density compared with current solutions with a highly integrated approach to power system design. This helps customers reduce complexity while scaling for the increasing demands of AI infrastructure and electrification.

onsemi Embedded Power Platform Chip

onsemi Embedded Power Platform Chip

onsemi Embedded Power Platform Wafer



onsemi Embedded Power Platform Wafer

SCOTTSDALE, Ariz., Sept. 16, 2026 (GLOBE NEWSWIRE) -- onsemi today unveiled the Embedded Power Platform (EPP), a breakthrough architecture that uses the silicon wafer itself as the foundation of the package and introduces a highly integrated approach to power system design. Designed as a scalable platform, EPP brings electrical, mechanical and thermal design together from the outset to help customers achieve higher power density, improve system performance and accelerate development in AI, electrification and autonomous applications.

“For decades, the semiconductor and the package have been treated as separate technologies. EPP changes that by making the silicon itself part of the system architecture,” said Hassane El-Khoury, President and CEO of onsemi. “EPP brings together advanced semiconductor technologies, manufacturing and system-level optimization into a common architecture that can evolve alongside future innovations. This approach can redefine how power systems are built and create a new foundation for AI infrastructure, electrification and automation.”

What’s New: EPP reimagines the package from passive housing into an active contributor to system performance. By using the silicon wafer itself as the package, EPP enables the seamless integration and interconnection of silicon, silicon carbide (SiC) and gallium nitride (GaN) technologies within a highly integrated wafer-level architecture. Multiple devices, including FETs, drivers and controllers, can be embedded together in a single package and co-optimized for electrical, thermal and mechanical performance. This enables complete power-system co-design, allowing electrical, thermal and mechanical characteristics to be evaluated and optimized together from day one. The result is higher power density, improved system performance, reduced development complexity and faster time-to-market.

EPP also leverages onsemi’s standard 12-inch silicon wafer manufacturing capabilities, bringing key integration processes into the precision and control of the semiconductor fab. This applies mature semiconductor design tools, wafer-level manufacturing and advanced simulation capabilities to power-system integration, helping improve performance while accelerating innovation.

Subaru Corporation is one of the first early engagement partners for EPP, working with onsemi to evaluate how the platform could support future electrified vehicle architectures. Through the collaboration, Subaru will gain early access to engineering samples, simulation models and technical expertise as the companies explore opportunities to improve vehicle performance, streamline development and accelerate innovation.

Why It Matters: AI infrastructure, electrified transportation, industrial automation are all competing for the same critical resource: power. Customers need to move and manage more electricity within increasingly compact systems while controlling heat, efficiency, cost and development time. Yet many of today's power systems are still developed using traditional design approaches that treat power electronics, mechanical design and thermal design as separate engineering challenges, with each layer optimized independently and sequentially. Decisions made at one stage can create compromises in another, leading to additional engineering iterations, costly late-stage changes and longer development cycles.

EPP replaces that sequential model with a common platform that can be co-designed, co-simulated and co-optimized. This approach is designed to help customers:

- Achieve 3 – 5x higher power density, depending on the application
- Accelerate development cycles to as little as four months
- Improve thermal performance and heat dissipation
- Reduce electrical losses through lower parasitic inductance
- Enable greater device control and higher switching frequencies
- Identify design trade-offs earlier and reduce costly late-stage changes
- Scale a common architecture across power levels, device types, applications semiconductor technologies

- **AI Infrastructure Applications:** As AI rack power increases, more space and cooling capacity must be dedicated to the

systems that deliver, convert and protect that power. This can limit how much compute capacity can fit within a rack. In an early EPP-based solid-state circuit-breaker design, the solution was approximately 50% smaller and 20% cooler than existing designs. By reducing packaging overhead and using the full EPP footprint to conduct heat, EPP can support more compact power systems, improve thermal management and enable greater power density in AI infrastructure.

- **Electric Vehicle Applications:** Electric vehicle traction inverters are often constrained by efficiency losses, thermal limitations, development complexity and system size. EPP addresses these challenges with up to 4x higher power density and 15% lower power losses compared to conventional approaches, enabling smaller, lighter and more efficient inverter designs. Its scalable architecture supports a single inverter platform spanning low-end to high-end vehicle applications, allowing automakers to reuse a common design across multiple vehicle models and power classes. This approach can reduce R&D and manufacturing costs, accelerate qualification and development cycles, improve vehicle range or lower system costs, and help bring new vehicle programs to market faster.

The AI era is creating new infrastructure challenges that cannot be solved by computing power alone. As power becomes one of the defining constraints on future innovation, EPP represents a fundamentally new approach to how energy is delivered, managed and optimized. By turning the silicon wafer into the package itself, onsemi is establishing a foundation for the next generation of AI, electrification and autonomous systems.

Availability: EPP is expected to begin sampling in 2026 with strategic customers and ecosystem participants across automotive and AI applications.

More Information:

- onsemi Charts Path to Power the Next Decade of Innovation
- Shift in AI Power Architecture Expands onsemi's Opportunity
- Extending onsemi's Automotive Growth Engine to Physical AI
- onsemi's Financial Transformation Gives Way to a New Era of Growth
- Video: onsemi Built to Break the Constraint
- Video: Simbe + onsemi: Autonomous Robotics Through Advanced Imaging
- Video: Siemens KACO and onsemi: Powering the Energy Infrastructure Behind AI
- onsemi Investor Day 2026

About Embedded Power Platform:

- onsemi Introduces the Embedded Power Platform, a Breakthrough Architecture for the AI Era
- Subaru to Evaluate onsemi's Embedded Power Platform for Future EVs
- Media Assets: Embedded Power Platform
- About Embedded Power Platform
- Subaru and onsemi: Strengthening Vehicle Safety and Efficiency
- Video: Embedded Power Platform Transforms Power System Design
- Video: Expert Insights on the Embedded Power Platform
- Video: Go Inside: EPP at Innovation Center Fab
- Technical Documentation: Embedded Power Platform

About onsemi

onsemi (Nasdaq: ON) delivers intelligent power and sensing technologies that enable electrification, energy efficiency, safety, and automation across automotive, industrial, and AI data center end-markets. With a highly differentiated and innovative product portfolio, onsemi helps customers solve complex challenges to achieve higher efficiency, improved performance, and lower system cost, while supporting a safer, cleaner, and more energy-efficient world. **onsemi** is part of the S&P 500® index. Learn more about **onsemi** at www.onsemi.com.

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