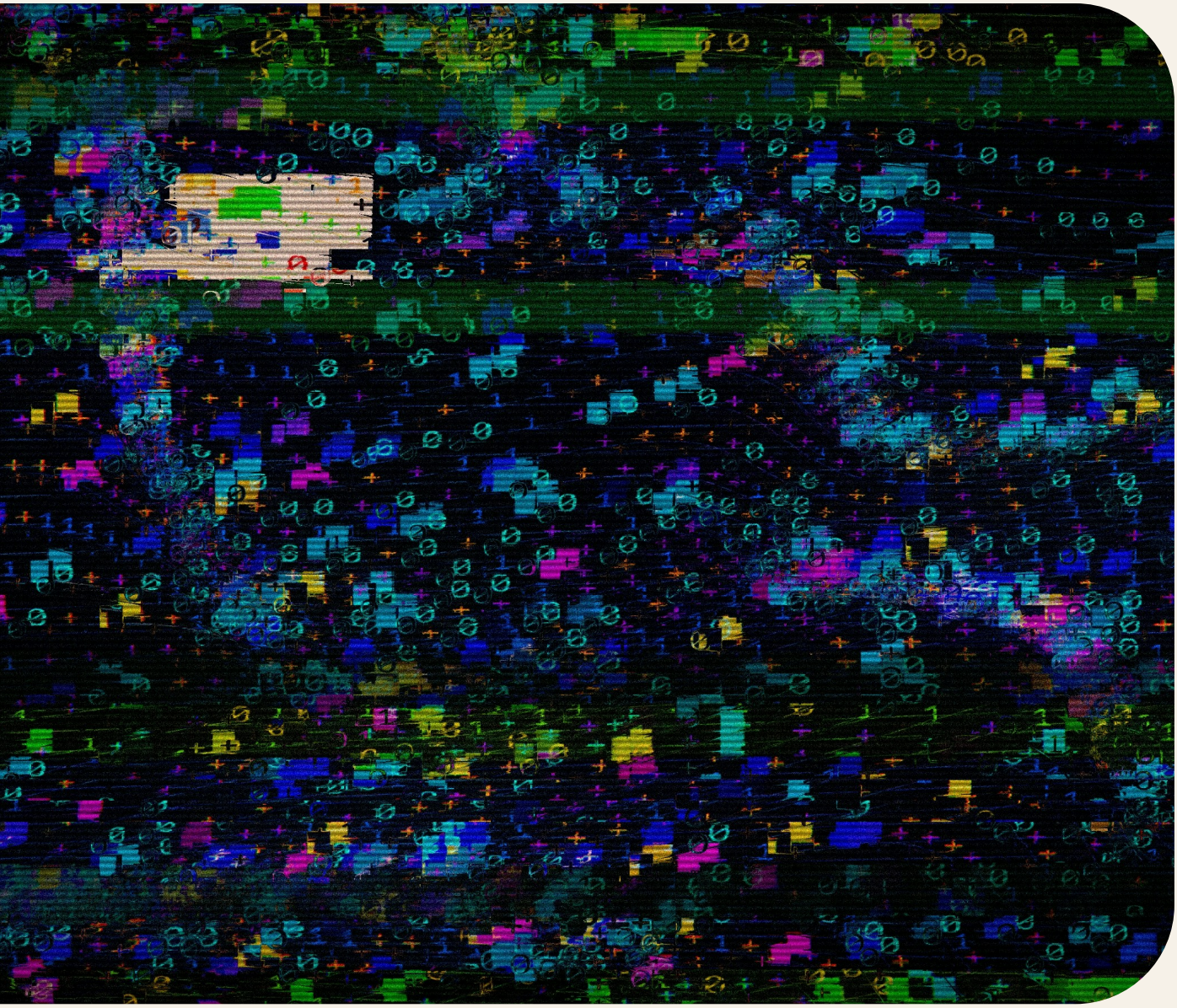

NEXTFRONTIER

SEMICONDUCTOR REPORT

Revolutionizing Semiconductors: Edge AI Innovations

Explore transformative breakthroughs reshaping the semiconductor landscape.

Week ending May 6, 2026

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Key Points

- → Enhanced chip performance through innovative architectures is crucial for edge AI applications.
- → Recommended: Marvell Technology (MRVL) - Focuses on intelligent network solutions.
- → Recommended: Alchip Technologies (ALCH) - Specializes in energy-efficient SoC design.
- → Recommended: SiTime Corporation (SITM) - Advances in timing technology for precision applications.
- → AI-driven manufacturing efficiencies are essential for future production capabilities.
- → Recommended: Achronix Semiconductor Corporation (SKLZ) - Specialist in advanced manufacturing nodes.
- → Recommended: Ampio Pharmaceuticals (AMPE) - Innovations in semiconductor production strategies.
- → Recommended: Cypress Semiconductor (CY) - Promotes efficiency in production yields.
- → Geopolitical tensions necessitate rethinking supply chain strategies.
- → Recommended: Lattice Semiconductor (LSCC) - Broadening supply chain footprints locally.
- → Recommended: ON Semiconductor Corporation (ON) - Focus on supply network resilience.

01

The landscape of semiconductor performance has evolved dramatically, particularly in the realm of efficiency, cost, and power gains, largely influenced by innovative approaches to...

Breakthroughs in Chip Performance (Efficiency, Cost, and Power Gains)

The landscape of semiconductor performance has evolved dramatically, particularly in the realm of efficiency, cost, and power gains, largely influenced by innovative approaches to chip architecture. In recent discussions by experts in edge AI, including those from Arm, Cadence, and Rambus, it has been emphasized that as the demands for artificial intelligence capabilities grow, so too must the performance metrics of the chips that drive these technologies. Breakthroughs in chip design have introduced architectures that significantly enhance energy efficiency—reducing power consumption while simultaneously boosting performance.

This has led to the emergence of new processes that involve optimizing memory systems and data movement, which are pivotal to achieving quick processing times while maintaining low latency.

For emerging technology investors, several mid-cap companies stand out as the forefront of this evolution. First, **Marvell Technology (MRVL)** focuses on developing intelligent network solutions, which cater to the growing need for higher bandwidth and efficient data processing in AI. Their recent innovations in data infrastructure pivot around improving overall efficiency and sustainability within semiconductor design.

Next, **Alchip Technologies (ALCH)** specializes in providing advanced SoC design services and manufacturing. Their commitment to energy-efficient design practices positions them well within this transformative era, where power efficiency and cost-effectiveness are critical. Another noteworthy mention is **SiTime Corporation (SITM)**, which is advancing timing technology needed in semiconductor applications, responding to the increased demand for precision in data and processing tasks in AI chips.

The trend is also complemented by the rise of private large language models (LLMs) that leverage the power of AI for autonomous task management. Firms like **BlackBerry Limited (BB)** are venturing into AI-enabled security solutions, focusing on protecting intelligent systems from threats while promoting

higher efficacy in processing tasks. These advancements showcase a diverse array of mid-cap companies poised to benefit from heightened chip performance capacities, reflecting a market that prioritizes swift adaptations to the AI-infused demand landscape.

02

Manufacturing innovations in the semiconductor sector are equally pressing, emphasizing efficiency and adaptability in processing as demand escalates for complex AI simulations.

Manufacturing Process Innovations

Manufacturing innovations in the semiconductor sector are equally pressing, emphasizing efficiency and adaptability in processing as demand escalates for complex AI simulations. The deployment of next-generation manufacturing techniques is becoming essential, particularly those that support both flexibility in production and reliability across varying semiconductor chip designs. The use of AI in manufacturing processes not only allows for enhanced automation but also the ability to harness predictive analytics, thereby mitigating risks associated with traditional manufacturing deficiencies.

Small-cap companies are pushing the boundaries of how chips are produced, focusing on reducing the footprint while maintaining the performance quality essential for success in the consumer and enterprise markets.

Notable is **Achronix Semiconductor Corporation (SKLZ)**, which employs advanced manufacturing nodes that support high-performance computing and efficient power solutions in its FPGA designs. Their focus on versatile manufacturing practices positions them uniquely amidst growing competition. Another strong contender is **Ampio Pharmaceuticals (AMPE)**, utilizing cutting-edge innovation strategies in semiconductor production linked to their proprietary technologies.

Their products have significant implications for energy preservation in design processes. Furthermore, firms like **Cypress Semiconductor (CY)** are drawing on traditional and emerging techniques in manufacturing to enhance chip production yields and reduce costs, contributing to widespread chip availability and affordability for future advancements in AI technology. With supply chain complexities also evolving, partnership-driven manufacturing models are expected to emerge more prominently in the small-cap space.

03

The global semiconductor supply chain has faced unprecedented challenges as geopolitical tensions and trade policies have begun to reshape the landscape significantly.

Geopolitical & Supply Chain Shifts

The global semiconductor supply chain has faced unprecedented challenges as geopolitical tensions and trade policies have begun to reshape the landscape significantly. The COVID-19 pandemic has exacerbated vulnerabilities within the supply chain, revealing how dependent many industries have become on specific geographical regions for production. Emerging mid-cap companies are frequently leveraging new partnerships and diversified sourcing strategies as a response to ongoing instability in supply flow and trade restrictions.

Companies such as **Lattice Semiconductor (LSCC)** are adjusting to these dynamics by broadening their supply chain footprints and focusing on locally sourced materials, thereby reducing global reliance on specific regions. Their adaptability in fostering a robust supply chain resilience strategy mirrors broader industry needs.

Additionally, **ON Semiconductor Corporation (ON)** has been implementing initiatives to ensure a sustainable and reliable supply network that caters to fluctuating demand within the semiconductor domain. The shifts in international trade regulations make it essential for these companies to cultivate strong relationships with local suppliers and manufacturers, thus creating a balanced ecosystem that can withstand future disruptions. In the wake of evolving complexities, looking ahead to the stability in the semiconductor industry will require mid-cap companies to not only innovate within their product lines but also rethink their supply chain management principles completely.

Understanding this dual focus on innovation and supply chain resilience will be essential for investors as they navigate this dynamic landscape.

Key Insights

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Dive deeper into the companies mentioned in this week's newsletter.

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