FROM THE EDITOR-IN-CHIEF

Silicon Pact: Reshoring the Supply Chain as Geopolitical Insurance

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Happy New Year! I wish all of you an exciting start to your journey in 2026. The new year has already opened with a series of headline-grabbing developments in international policies that directly impact our field. On 15 January, the United States and Taiwan signed a landmark trade agreement, with some referring to it as the *silicon pact*. At its core, the pact reflects Washington's ambition to reshape the global semiconductor landscape by having Taiwan commit to a colossal investment in the United States. In exchange, the self-governed island will dodge a 100% tariff and instead face a much reduced 15% tariff, in line with what other East Asia countries have received. Under the agreement, the Taiwanese semiconductor industry, led by Taiwan Semiconductor Manufacturing Company (TSMC), has committed at least $250 billion in direct investments to build and expand the semiconductor ecosystem in the United States, while the Taiwanese government will provide $250 billion in credit guarantees. Assuming that TSMC's direct investments are fully self-financed, then the entire amount of investment committed by Taiwan will reach a staggering $500 billion, a scale on par with the Trump Administration's previously announced artificial intelligence (AI) initiative named *Project Stargate*. Even more jaw dropping, as U.S. Secretary of Commerce Howard Lutnick commented in a recent interview, this $500 billion investment is just a "down payment" on a broader strategy to relocate 40% of Taiwan's existing semiconductor supply chain onto U.S. soil before President Trump leaves office. This down payment is expected to include six additional advanced logic fabrication plants (fabs) in Arizona, on top of the six advanced logic fabs and two advanced package fabs already committed by TSMC. TSMC has already started their expansion plan. According to some news outlets, the company has completed a $197 million acquisition of an additional 900 acres land adjacent to its current site in Phoenix, AZ. In parallel, its ecosystem partners are accelerating their own build-out in the same region, forming a concentrated semiconductor manufacturing hub around the Valley of the Sun.

Beyond President Trump's long-standing push to reshore manufacturing and restore industrial jobs, the deal is fundamentally driven by national security concerns amid escalating geopolitical tensions between Washington D.C. and Beijing. A major conflict over the Taiwan Strait would devastate the semiconductor supply chain, which remains heavily dependent on Taiwan-based operations. Bloomberg estimates that the resulting shock to the global economy would exceed the impact of the 2008 financial crisis and the COVID-19 pandemic combined, potentially triggering a global gross domestic product decline of up to 10%.[1]

How likely is such a disruption? Although a major military conflict or a sea-route blockade in the Taiwan Strait could impair Taiwan's oil and liquefied natural gas imports, which supply more than half of the island's energy needs, many observers argue that this scenario remains unlikely and that tensions could be managed through diplomatic means. Nonetheless, bipartisan U.S. policy actions increasingly resemble the purchase of a "geopolitical insurance policy," aimed at building a resilient domestic semiconductor supply chain—with Taiwan and its ecosystem footing the bill—to mitigate the consequences of a low-probability but catastrophic disruption to the global economy. Such a calculation in international geopolitics finds a striking parallel in today's large-scale datacenter computing systems, the central theme of this Special Issue on Silent Data Corruptions (SDCs). Much like a geopolitical shock, SDCs may be triggered infrequently by alpha-particle strikes, transistor aging, corner-case thermal and voltage conditions, or escape from standard burn-in testing. Although these events are rarely incurred, their impact can be consequential when faults evade conventional error handling, parity checks, or error-correcting code. The resulting failures can manifest as prolonged machine learning model training, subtle data inaccuracies, or incorrect data returns. In worst-case scenarios, they lead to flawed decisions with critical real-world consequences.

For this Special Issue on SDCs, I could not express more gratitude to our guest editor, Prof. Dimitris Gizopoulos, from the University of Athens, Greece,

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APPENDIX: RELATED ARTICLES

A1. D. Gizopoulos, "Special Issue on Silent Data Corruptions—From silicon to cloud data centers and AI systems of huge scale," *IEEE Micro*, vol. 46, no. 1, pp. 6–9, Jan./Feb. 2026, doi: 10.1109/MM.2026.3654307.

A2. J. Yi, "A review of *Wisconsin Alumni Research Foundation v. Apple*—Part VIII," *IEEE Micro*, vol. 46, no. 1, pp. 102–106, Jan./Feb. 2026, doi: 10.1109/MM.2026.3659394.

A3. G. Singer, "Emerging technology and engineering challenges of artificial intelligence deep scheming: New requirements for containing artificial intelligence misalignment," *IEEE Micro*, vol. 46, no. 1, pp. 86–91, Jan./Feb. 2026, doi: 10.1109/MM.2026.3654309.

A4. S. Greenstein, "Frontier pick-and-shovel markets," *IEEE Micro*, vol. 46, no. 1, pp. 107–109, Jan./Feb. 2026, doi: 10.1109/MM.2026.3652025.

A5. R. B. Lee et al., "Michael J. Flynn," *IEEE Micro*, vol. 46, no. 1, pp. 98–101, Jan./Feb. 2026, doi: 10.1109/MM.2026.3660487.

for assembling this special issue under a tight publication schedule. His technical leadership in this rapidly emerging area, extensive networking across academia and industry, and personal enthusiasm and passion for this subject were instrumental in making this special issue possible. The selected articles in this issue provide broad and timely coverage of SDC challenges, spanning computing devices including CPUs, GPUs, and AI accelerators as well as machine learning training and inference, simulation and measurement, testing, and power management. The Guest Editor's Introduction,[A1] in which Prof. Gizopoulos offers an excellent introduction to the topic, highlights recent discussions from industry leaders such as Alibaba, Amazon, AMD, DeepSeek, Google, Meta, Tesla, and workstreams from the Open Compute Project as well as a preview of the eight articles featured in this issue.

Continuing the Micro Law column series,[A2] Part VIII of *Wisconsin Alumni Research Foundation (WARF) v. Apple* features Dr. Joshua Yi's examination of how "claim construction" was handled late in the litigation. He analyzes the strategic tradeoffs of delayed claim construction and underscores systemic challenges courts face due to limited technical backgrounds among judges and clerks, challenges that often result in high reversal rates on appeal. In the Micro AI column,[A3] Gadi Singer discusses advanced agentic AI systems that naturally develop "deep scheming" behaviors, such as survival drive, tactical deception, goal-guarding, and so on, that pose serious alignment and safety risks as autonomy increases. He contends that existing guardrails and fine-tuning approaches are insufficient and calls for intrinsic alignment frameworks to provide visibility into AI's reasoning processes. In the Micro Economics column,[A4] Prof. Shane Greenstein examines "frontier pick-and-shovel" markets, where companies such as Intel, Qualcomm, Nvidia, and Amazon deliver technical breakthroughs that serve as essential inputs for downstream businesses. He also demonstrates how such breakthroughs often require both foresight and luck, and how early investments can ultimately reshape entire industries.

This issue also pays tribute to Prof. Michael J. Flynn, who passed away on Christmas Eve 2025. A towering figure in computer architecture, Prof. Flynn introduced the foundational taxonomy of parallel processing—SIMD, MIMD, SISD, and MISD—now taught in virtually every computer architecture textbook and classroom. He was also the founder of the field's most influential conference and institutions: the International Symposium on Computer Architecture (ISCA), the IEEE Technical Committee of Computer Architecture (TCCA), and the Association for Computing Machinery's Special Interest Group on Computer Architecture (SIGARCH). We invited Prof. Flynn's former advisees, Prof. Ruby Lee et al., to contribute a memorial article[A5] celebrating his life and his enduring legacy.

I hope that you enjoy the theme and the articles selected for this special issue. Again, best wishes to all for a very prosperous 2026.

REFERENCE

1. J. Welch, J. Leonard, M. Cousin, G. DiPippo, and T. Orlik, "Xi, Biden and the $10 trillion cost of war over Taiwan," *Bloomberg*, Jan 9, 2024. [Online]. Available: https://www.bloomberg.com/news/features/2024-01-09/if-china-invades-taiwan-it-would-cost-world-economy-10-trillion

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