House Energy & Commerce Committee
Subcommittee on Commerce, Manufacturing, and Trade

"Computing Power: Examining the Semiconductor Ecosystem"

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Chairman Bilirakis, Ranking Member Schakowsky, Chairman Guthrie, Ranking Member Pallone, and distinguished members of the Commerce, Manufacturing, and Trade Subcommittee, thank you for the opportunity to testify on the semiconductor ecosystem and its central role in American technology leadership.

Semiconductors are no longer just an input to the digital economy; they are the foundation of economic competitiveness, national security, and technological leadership. And increasingly, leadership in semiconductors will determine leadership in AI.

Intel's American Manufacturing Leadership

Intel is one of the world's leading semiconductor companies and the only American company that both designs and manufactures leading-edge logic chips.

What makes Intel distinct is not just what we build, but where and how we build it. Our leading-edge technology development and manufacturing is conducted in the United States, using U.S.-developed process technology and intellectual property. That integration – from research to production – is a core strategic advantage for the United States, and one of the reasons Intel is a key technology partner for multiple federal agencies including the Department of Energy.

Since our founding in 1968, Intel has invested continuously in American innovation. Today, we are executing one of the largest industrial expansions in U.S. history, investing more than $100 billion to new and expanded facilities in Arizona, New Mexico, Oregon, and Ohio. Since 2020, Intel has invested approximately $93 billion in R&D, overwhelmingly in the U.S.

Co-locating R&D with manufacturing is crucial for maintaining America's technological leadership and national security, which underpin AI innovation and are vital for commercial, defense and intelligence systems.

Since the semiconductor shortage earlier this decade, U.S. policymakers in both parties have been rightly concerned over the high concentration of semiconductors manufactured overseas, specifically the advanced logic chips that underpin AI technology. Intel currently manufactures an advanced 1.8 nanometer-class semiconductor technology or 18A, the most advanced logic technology ever developed and manufactured in the U.S., supporting critical applications in AI and national security.

Intel's 1.8-nanometer-class process is manufactured at high-volume in Arizona and Oregon. It incorporates extreme ultraviolet lithography or EUV, Gate-All-Around transistors (RibbonFET), and backside power delivery (PowerVia) enabling faster, more energy-efficient, higher-density chips essential for AI systems.

Intel also leads in advanced packaging, enabling multiple chiplets — logic, memory, and accelerators — to be integrated into a single high-performance system. Intel's EMIB (Embedded Multi-Die Interconnect Bridge) and Foveros (3D Stacking)[1] technologies, produced at high volume in Rio Rancho, New Mexico, are critical to AI-era computing. These technologies offer significant performance benefits to our internal and external foundry customers. Importantly, the

core technology development and associated intellectual property for the leading process node and advanced packaging reside in the United States.

Intel's AI strategy is grounded in American manufacturing and open platforms. Our AI portfolio spans data centers, PCs, and edge platforms. The next generation of AI PCs is the first product built on Intel 18A and that same technology will anchor our data-center roadmap, reinforcing the central role of U.S. manufacturing, CPUs, and the x86 ecosystem in meeting surging AI demand.

At the same time, Intel is investing in leading the next computing frontier: quantum. We are pursuing silicon-based spin qubits, applying our leading-edge manufacturing to produce quantum devices at an unprecedented scale, precision, and size — up to a million times smaller than competing approaches. This manufacturing advantage positions Intel to deliver scalable, U.S.-built quantum systems that no other company can replicate. Our long-standing collaboration with Argonne National Laboratory and our work with the Department of Energy underscore how sustained domestic manufacturing and research leadership will drive both AI scale today and breakthrough technologies like quantum computing tomorrow.

AI Growth: A Unique But Challenging Opportunity

Artificial intelligence has moved from a breakthrough technology to a backbone technology at extraordinary speed. What was once experimental is now foundational — reshaping industries, economies, and national security.

That shift is driving a surge in demand for compute unlike anything in the history of our industry.

Training a single frontier AI model can require more compute than all the transistors Intel shipped in a given year just a decade ago. And inference — running AI models at scale — requires a distributed, always-on compute infrastructure across data centers, edge devices, and enterprise networks simultaneously. The International Data Corporation projects that AI-related semiconductor demand will represent the fastest-growing segment of the global chip market through the end of this decade.

This creates a defining moment:

- An opportunity, because the United States is home to the world's leading AI companies and largest market for AI compute.

- A challenge, because the infrastructure required to meet that demand — leading edge fabrication facilities, advanced packaging, and high-performance systems — require tens of billions of dollars and years to build. A single leading-edge fabrication facility now costs upward of $20 billion to build and equip and requires years before production begins.

- A national security imperative because the chips that power AI — and increasingly, the AI models themselves — are becoming assets of strategic consequence. Nations that lead in AI compute have asymmetric advantages in economic productivity, intelligence capabilities, autonomous systems, and cyber operations.

The question before us is straightforward: Will the United States build the infrastructure that powers the AI era — or depend on others to supply it?

Intel's view is clear: America must build.

Semiconductor Supply Chain Resilience

The global semiconductor supply chain is one of the most complex and tightly coordinated industrial networks in the world — and one of the most strategically exposed.

It is global by design, optimized for efficiency over decades. But today, it is under pressure from three forces at once: surging AI demand, geopolitical competition, and concentrated points of failure.

The vulnerabilities are not hypothetical. Some examples we're seeing in the market today:

- Active conflicts have disrupted access to noble gases — neon and helium — essential inputs to the photolithography processes at the heart of chip manufacturing.
- Critical minerals including tungsten, gallium, and rare earth elements, on which the entire semiconductor industry depends, are disproportionately extracted and refined in China.
- More than 90 percent of advanced manufacturing capacity and the world's leading-edge logic production remains concentrated in Taiwan[1].
- Regulatory changes, including export controls, environmental permitting requirements, or a chemical supplier exiting a market can remove critical inputs from the supply chain faster than alternatives can be scaled.

Any one of these points in isolation warrant attention. Together, they represent structural risk to the industry and the economy.

Industry and the United States Government have taken important steps. The Trump Administration has negotiated key trade agreements with Japan and Taiwan to drive more investment into the United States. Investments catalyzed by the bipartisan CHIPS and Science Act have already prompted more than $500 billion in announced private sector investments[2]. Companies across the supply chain have diversified sourcing for critical materials, invested in recycling and substitution technologies, and restructured procurement strategies to reduce single-point dependencies. These are meaningful steps. But the scale of the challenge — and the pace at which geopolitical conditions are evolving — means that the work of building a more resilient supply chain is far from complete.

It requires sustained focus and a clear understanding of three realities.

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[1]EE Times Asia, April 8, 2026: Inside Taiwan's Semiconductor Supremacy

[2]Semiconductor Industry Association, January 30, 2026: Semiconductor Supply Chain Investments - Semiconductor Industry Association

1.**The semiconductor supply chain will remain global**. No nation — including the United States — can or should attempt to replicate the entire value chain domestically. Resilience comes from diversification and domestic strength in critical capabilities — not isolation. Policies that ignore the global nature of the industry risk disrupting the very supply chains they intend to protect.

2. **Capital drives geography**. The investments required to build and sustain semiconductor manufacturing are extraordinarily capital intensive — measured in tens of billions of dollars per facility and climbing with each new process generation. Capital investment gravitates to the nations where long-term economics, policy stability, and incentives, infrastructure, and talent make long-term manufacturing economically viable. Sustaining a competitive advantage requires long-term commitment, especially as competitive nations are accelerating their support, incentives, and government investments in attempts to gain technological, national security, and economic advantages.

3. **Certainty matters.** Leading-edge fabs operate continuously and require predictable regulatory and policy environments. Advanced fabs must run 24 hours a day, seven days a week, to produce supply and generate the returns that justify the capital invested in them. Unpredictable changes to permitting, environmental compliance, imports, or export licensing can alter the investment calculus that determines where a fab gets built.

As we further enable U.S. manufacturing and invest in the infrastructure underpinning AI innovation, we welcome the opportunity to work with the Committee on several important policy areas.

Trade and the Importance of Access to Markets

Intel strongly supports trade policies that strengthen American manufacturing — but they must be precisely targeted. to avoid unintentionally disadvantaging U.S. manufacturers relative to foreign competitors.

Broad tariffs on critical materials and equipment used inside U.S. fabs would raise production costs for American manufacturers without creating any corresponding domestic supply. Manufacturing inputs such as advanced lithography tools, specialty chemicals, and process gases are not available domestically at the scale or purity required. Equipment and machinery account for roughly two-thirds of fab construction costs. Tariffs on these inputs function as a tax on American manufacturing, raising Intel's cost relative to foundries whose core operations are primarily located outside the U.S. and face no equivalent burden.

Protecting U.S.-developed technology and U.S.-owned intellectual property must also be central to any trade remedy. Advanced process technology development is the most innovation-intensive phase of semiconductor manufacturing and is foundational to long-term economic and national security. Even when high-volume production occurs globally, U.S. leadership in process technology and IP is what sustains American competitiveness. Trade policies that overlook this risk disincentivizing U.S. innovation and weakening our national security posture.

At the same time, access to global markets is essential to sustaining domestic manufacturing. Semiconductors rank as America's sixth-largest export, with roughly 70 percent of U.S. chip sales going to overseas customers. Without global demand, the economics of building and operating leading-edge fabs in the U.S. break down. Policies that reduce demand for U.S.-fabricated chips, whether by increasing costs or limiting market access, create advantages for foreign competitors and erode the financial foundation that sustains American fabs, American jobs, and continued investment in next-generation technology.

Sustaining U.S. leadership requires trade policies that align national security objectives with commercial competitiveness. Targeted tariff exemptions for highly specialized inputs not sufficiently available domestically, updated country-of-origin determinations that reflect where semiconductor value is actually created, and duty drawback programs that incentivize foreign buyers to use U.S.-made chips are concrete tools that would reinforce American manufacturing rather than undermine it.

Intel is committed to working with Congress and the Administration to get this right. Protecting U.S. semiconductor manufacturing requires a trade strategy that strengthens domestic production, preserves access to global markets, and ensures America, not its competitors, sets the pace for the advanced technology and AI capabilities vital to our national and economic security.

Toxic Substances Control Act (TSCA) Reform

The pace of semiconductor innovation increasingly depends on access to specialized, small-volume chemicals used in advanced manufacturing.

Today, the U.S. regulatory process for approving these materials is significantly slower than in key competitor nations. This creates delays, discourages suppliers from prioritizing the U.S. market, and risks putting American manufacturers at a disadvantage.

To advance American innovation in semiconductor manufacturing and ensure a level playing field globally, Congress should implement targeted amendments to the Toxic Substances Control Act (TSCA).

Key competitor jurisdictions, including Taiwan, Korea, and Japan, provide for streamlined approval of new chemicals that are essential to leading-edge chip manufacturing. Under EPA's New Chemical Program, by contrast, these same small-batch chemistries are subject to lengthy and costly reviews, thereby creating significant challenges for global chemical suppliers to qualify their products in a timely manner for use in the U.S. This threatens to delay innovation and places American semiconductor manufacturers at a strategic disadvantage in the global marketplace.

Congress can restore competitive balance without compromising human health or the environment by instituting targeted amendments to the TSCA statute. These could include provisions to accelerate approvals of low-volume, specialty chemicals used by the semiconductor sector under controlled conditions of use. EPA's regulatory review process needs to acknowledge the rapid innovation cycles of the U.S. chip sector and match approaches in major competitor jurisdictions.

EPA's authority to collect fees under the TSCA program expires on September 30, so there is a near-term opportunity for Congress to act and institute reforms this year.

Building a Strong U.S. Workforce

A skilled workforce is foundational to U.S. leadership in semiconductors and AI.

By 2030, the U.S. semiconductor industry will need roughly 115,000 additional workers, with more than half of those positions at risk of going unfilled without targeted action across the education and training pipeline[3].

Across the sector, many traditional manufacturing roles have evolved to include skills in software, data analytics, networking, virtualization, and AI. Workforce readiness challenges can slow adoption of advanced technologies and threaten the pace of domestic innovation.

Intel is investing in workforce development—from technician training to advanced research—but scaling this effort requires sustained federal partnership: strengthening STEM education, expanding training pathways, and ensuring consistent, long-term funding.

In 2022, Intel committed $100 million over ten years to workforce development, including a major partnership with the National Science Foundation and targeted investments in universities and community colleges supporting new U.S. fabs. These efforts expand technician training, modernize engineering curricula, support veterans, grow graduate level research opportunities, and increase hands on, industry aligned education. Sustained federal partnership is essential to scale these efforts — by strengthening K12 STEM readiness, expanding pathways from certificates to advanced degrees, supporting faculty development, and ensuring stable, multiyear funding — as a resilient, highly skilled American workforce is indispensable to maintaining U.S. leadership in advanced manufacturing, AI, and national security.

Importance of the CHIPS Act

Leading edge semiconductor manufacturing is among the most capital-intensive and technologically complex activities in the global economy. A single fab can cost more than $20 billion and take years to reach full production.

These realities explain why, over the past several decades, the number of companies capable of leading-edge manufacturing has narrowed dramatically — today, limited to just three globally, with Intel as the only company conducting leading edge logic R&D and manufacturing in the United States.

The CHIPS and Science Act has been essential to restoring U.S. competitiveness and enabling large-scale domestic investment.

CHIPS incentives have helped offset structural cost disadvantages associated with U.S. production and supported the construction of new leading-edge fabs and investments made in U.S. operations.

[3] SIA, April 2024: SIA Workforce Policy Blueprint 3_28_24

Intel has received $8 billion under its CHIPS agreements and remains eligible to receive up to an additional $3.2 billion under its Secure Enclave agreement, and Intel has issued shares of its common stock to the U.S. government. This support has helped fund commercial manufacturing projects in Arizona, Oregon, New Mexico, Ohio, and the Secure Enclave program. This support acknowledges the scale of Intel's U.S. investments and underscores confidence.

Equally important, the bipartisan Advanced Manufacturing Investment Credit (AMIC) has been critical. The AMIC has reduced the effective cost of building and scaling advanced manufacturing in the United States, supporting Intel's ability to deploy capital at the scale and speed required to remain globally competitive. However, the scheduled expiration of the AMIC at the end of 2026 risks slowing momentum precisely as global competition intensifies. Extending the AMIC would provide the certainty needed for these critical long term and capital-intensive investments to sustain America's manufacturing resurgence and deliver durable economic and strategic returns.

Together, the CHIPS Act and an extended AMIC are indispensable to anchoring advanced semiconductor manufacturing at home, strengthening supply chain resilience, and securing U.S. leadership in innovation and national security.

Conclusion

The decisions Congress makes on semiconductor policy will determine whether the United States leads or follows in the technologies that define economic and national security for decades to come.

At the center of that question is a simple reality:
If you do not build the chips, you do not control the future of AI.

Intel represents a unique national capability — the only American company that designs, develops, and manufactures leading-edge logic technology at scale in the United States. That distinction is not simply a point of corporate pride. It is a strategic national asset. It is not an accident that the U.S. national security agencies are partnering with Intel as they realize this capability is not guaranteed. It depends on sustained investment, aligned policy, and a clear national commitment.

Getting semiconductor policy right requires a coordinated approach: scoping tariffs so they strengthen, rather than tax, domestic manufacturers; preserving access to global markets that sustain the demand U.S. fabs require to operate at scale; extending manufacturing investment incentives to support long-term capital commitments; and building the workforce and innovation ecosystem needed to lead in AI and advanced computing.

The window to act is narrow — but the path is clear. Intel is committed to being the industrial foundation of that effort. We urge Congress to advance policies that match the scale of the moment, and we look forward to partnering with this Committee to ensure America, not its competitors, sets the pace for advanced technology vital to our national and economic security.

Thank you for your time and we look forward to working with Congress to ensure the United States remains the world's leader in semiconductors, AI, and the technologies that will define the decades ahead.