



**Written Testimony of
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Virtual Forum for Risks in the Semiconductor Manufacturing and Advanced Packaging Supply
Chain***

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Hello, my name is Jeff Ferry. I am Chief Economist with the Coalition for a Prosperous America. We are an advocacy group and think tank dedicated to broadly shared U.S. prosperity, stronger economic growth, and reduced inequality, which can only be achieved by rebuilding the U.S. manufacturing sector and encouraging the growth of high-wage, high-growth industries.

Unusually for an economist, I also have real-world business experience. I spent more than 16 years in the technology industry, including six years at Infinera, an optical networking startup that built the only greenfield chip fab established in Silicon Valley this century.

The U.S. is today facing a serious crisis in the semiconductor industry. As the current widespread chip shortage graphically illustrates, the U.S. has become overly dependent on a handful of chip manufacturing houses, known as fabs, primarily in Asia. Today, auto workers are being laid off because auto manufacturers cannot get the chips they need to build vehicles.

The challenge the U.S. faces is threefold: first, China is targeting the chip industry as one of its “Made in China 2025” critical industries where it aims to become a world leader. Secondly, our global supply chains have become longer, more concentrated, and more fragile. Today they are less resilient than they were a decade or two ago, and more susceptible to disruption from unpredictable international events. Finally, the U.S. financial system is driving U.S. chip design companies to sell off or shut down their manufacturing operations, making us even more dependent on foreign chip fabs.

This overdependence on a small number of foreign fabs located far away and close to China is a danger to our economic security and our national security. The danger to national security is that virtually every military system including even the humble jeep is today dependent on chips so the nation that gains a lead in chip technology would have the upper hand in every domain of modern warfare.

Today, China is estimated to be spending some \$120 billion of venture capital funding to catch up and surpass the U.S. and other semiconductor powers. The steady loss of manufacturing capability in the U.S. will accelerate if we do nothing. Experience shows that design and product development tend to follow manufacturing. So if manufacturing continues to move to Asia, we can expect product design and R&D to follow it over time.

The solution is for the U.S. government to take a leadership role and target rebuilding our chip manufacturing capability. We recommend the U.S. set a target of 50% production capacity within the U.S. for every major segment of the semiconductor market. I mean by this the U.S. should have the capacity to supply the U.S. industry with 50% of the chips needed in logic semiconductors, 50% in memory, 50% in analogue, 50% in power semiconductor, 50% in display, and, crucially, 50% in artificial intelligence/machine learning semiconductors.

To achieve this, the U.S. government should establish a public-private partnership to build, own and operate fabs within the U.S. This project could start with GlobalFoundries. The other

partners in such a venture should be the major U.S. fabless chip companies. This would give the fabless chip companies an interest in steering their manufacturing work to the new consortium.

There are four crucial steps to making this process successful:

- First, the U.S. government should set a target objective, which I suggest should be 50% production capacity by market segment. It should not just dispense money to chipmakers and hope they do the right thing. You must know your objective.
- Second, the U.S. should extend the investment capital to make its target achievable. The \$50 billion figure in the CHIPS for America act is a great start. A total of \$100 billion would be better. And there is a multiplier effect when you build a consortium, because the other partners would invest alongside the federal government.
- Third, a new business needs customers. The customers for U.S. fabs are the U.S. fabless chipmakers. There must be incentives to get these customers to favor U.S. fabs. That is in our economic and national security interest. Tax credits, a stake in a consortium, or, if necessary, tariffs, could provide the right incentive to rebuild the U.S. fab industry.
- Fourth, U.S. fabs need protection from the predatory practices of foreign suppliers, in particular China.

I would like to add two final points: first, we should not be supporting China's efforts to overtake us. We should enforce the export control laws more firmly, in particular on the semiconductor equipment manufacturers and the electronic design software firms to stop them exporting vital chipmaking tools to China.

Finally, in a recent article published on the CPA website, we pointed out that leading U.S. chipmakers returned \$42 billion to shareholders last year, far more than they invested in their own businesses. The U.S. public stock market system we have today favors short-term management of the stock price, and short-term enrichment by senior executives, over long-term investment in national wealth. We need to fix this system. We can only remain the world's largest economy and superpower if we find a way to incentivize companies not to manage their stock price on a weekly basis, but to invest in the future with a 20 year or 50 year time horizon.

Thank you.

Jeff Ferry
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