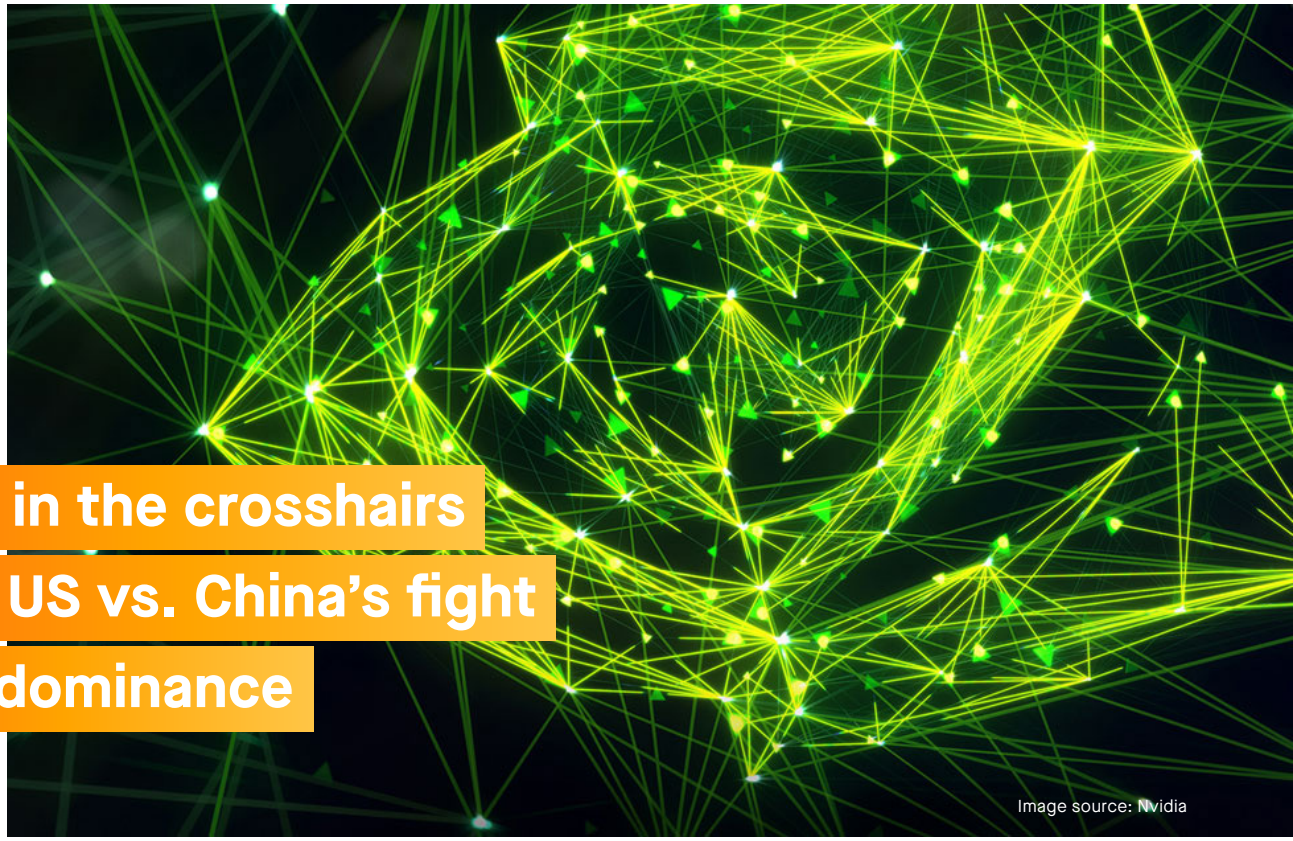

Nvidia in the crosshairs of the US vs. China's fight for AI dominance

Image source: Nvidia

The Framework for AI Diffusion was set to officially take effect on 15 May, but President Trump said he wants to tear it up and replace it with a much simpler rule that "unleashes American innovation and ensures American AI dominance". We do not expect the new AI export rules to change much for China—it will still be barred from advanced AI technologies—or for the close allies of the US (which will continue to enjoy unrestricted access). We expect President Trump to relax restrictions on "Tier 2", which is currently subject to export limits and special permits.

In this note, we examine what those changes may mean for Nvidia.

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For **Nvidia,** the financial impact is limited in the near term but positive in the long term. Most of Nvidia's revenue is generated in the US and Tier 1 countries where demand is strong; revenues from China have already dropped due to existing restrictions in place—accounting for only a small percentage of the total—risking little. But as AI is adopted worldwide, it is important for the rest of the world to be able to buy Nvidia chips. Excessive US export controls may result in steering some emerging markets towards Chinese alternatives, which are not yet the perfect substitute, but may improve over time as China invests in its domestic AI sector.

What was in the current Framework for AI Diffusion?

The Framework for AI Diffusion is the sweeping global framework for AI chip exports. It was put in place in the final week of Biden's administration and was set to come into effect on 15 May 2025. It essentially divides countries into three tiers.

- **Tier 1 countries have unrestricted access to advanced AI chips.** The list includes the US plus 18 allies: Western Europe, Canada, Australia, Japan, South Korea, New Zealand, and Taiwan.
- **Tier 2 (around 150 countries) faces strict limits on AI chip exports,** including complex export licensing and quarterly caps on GPU purchases. Some, like the UAE, benefit from negotiated agreements and pathways for controlled chip access, while others face tighter restrictions.
- **Tier 3 (China, Russia, North Korea, Iran, Cuba, and Macau) faces full export bans on AI chips** due to US arms embargoes and security concerns, effectively blocking frontier AI development domestically and via cloud services.

Why AI export controls?

In Washington, DC and even in Silicon Valley, there is broad consensus that the US and China are locked in an adversarial race for AI leadership. China is still the second most powerful AI nation, and DeepSeek has showcased technical progress despite US export restrictions. But the US export control policy is now shaped by "China tech hawks" who have long warned that the US is "giving too much of our technology to China". They believe that previous restrictions never delivered a decisive "killing blow" to China's AI sector, and that today's export controls only impose additional costs on Chinese developers but stop short of outright defeat.

Restrictions on Tier 2 countries serve to prevent the indirect transfer of advanced chips to China. Chinese firms, led by Huawei, manage to bypass export controls through legal loopholes or illegal smuggling. It has been reported that Huawei has managed to purchase over two million forbidden AI chips from TSMC by funnelling orders through shell companies. A number of "legacy node" semicap (semiconductor capital) equipment tools legally acquired under licence for legitimate purposes were quietly diverted into SMIC—China's top semiconductor foundry—for advanced AI chip production. Bold middlemen have also trafficked hundreds of millions of dollars' worth of banned Nvidia chips into China. Restrictions placed on Tier 2 countries were intended to close loopholes China might exploit via friendly third countries.

Nvidia is still doing business in China, but compliance comes at a cost

Nvidia responds with chips that comply with the law. When high performance chips H100 and A100 were banned from export to China, Nvidia developed H800 and A800 chips – versions of H100 and A100 modified for the Chinese market. Over time, it became clear that with smart workarounds, the H800 / A800 performance reduction was less significant than anticipated. China acquired a lot of those chips when it was still legal to do so, but eventually H800 and A800 chips were banned under updated US export controls. To comply with those further export restrictions, Nvidia developed H20, L20, and L2 chips – designed specifically for the Chinese market with even more reduced performance; These chips are currently allowed for export to China.

Nvidia remains committed to its Chinese customers, which the CEO confirmed in his recent visit to China. The latest generation chips B100 and B200 are restricted from export to China under US regulations, but Nvidia confirmed a forthcoming B20 chip tailored for the Chinese market, based on the same new architecture, which is expected to comply with US export controls and be permitted for sale in China. In addition, compliance requires extra R&D effort and other costs for Nvidia.

Nvidia's exposure to China has declined to 12% of revenue – half of its peak level. The risk of further revenue loss due to additional China export restrictions is therefore limited. Moreover, demand in the US and other Tier 1 countries is so strong that the company is likely to sell any amount of chips that TSMC can manufacture for Nvidia. So, in the near term, we think Nvidia's financial performance should not be materially affected.

In the medium term, export restrictions shrink Nvidia's legal addressable market, not only by limiting its ability to serve clients in the sophisticated Chinese technology sector, but also by restricting its ability to meet legitimate demand in fast-growing markets like the Middle East, Singapore, or India. As data-centre capex in the US may normalise over time, Nvidia may rely more on those markets for future growth.

What can China do to keep up in the AI race?

China's tech industry benefits from strong state support towards self-sufficiency and global competitiveness. Today, China can't buy the most powerful AI chips from the West. Chinese chip design companies can't use TSMC, Samsung, or Intel's advanced manufacturing capacity to fabricate domestic-design alternatives to Nvidia chips. Chinese semiconductor foundries are barred from buying the most advanced equipment required to manufacture those AI chips. Despite these restrictions, China's DeepSeek demo and Huawei's aggressive chip rollouts have made it clear that China remains a fierce second-place competitor—"sandbagged" but far from defeated.

Chinese industrial policy centres around the following points:

- **State funding and industrial policy:** China's government continues heavy funding for chip R&D and fabrication, treating Huawei as a national security priority. This support underwrites R&D and subsidises fabs, ensuring growth despite Western restrictions.
- **Huawei as national champion:** Huawei is the clear national AI champion and is supported by a range of state incentives. Huawei's dominance allows it to influence industrial policy and secure wafer capacity priority at SMIC (over smaller domestic designers like Cambricon). Moreover, there is a significant effort underway to support an open-source community around Huawei's software platform and gradually reduce China's reliance on foreign AI software tools.
- **A wider "AI-plus" strategy:** This goes beyond frontier models (like GPT). It includes focusing on AI-powered applications such as autonomous vehicles, cloud computing, robotics, and advanced information processing. This reflects Beijing's aim to embed AI across many sectors rather than solely chasing cutting-edge language models.

- **Diversifying beyond general-purpose chips:** Companies like Baidu follow Google's lead by developing application-specific AI chips, creating a two-track approach: Huawei competes on general-purpose AI chips while others build in-house ASICs to reduce Nvidia dependence.

Can Huawei really rival Nvidia?

Huawei is facing multiple reinforcing gaps that keep it from truly threatening Nvidia's dominance.

1. **Performance gap in hardware:** Huawei's best AI chips run at roughly 60 percent of the performance of Nvidia's prior generation Hopper silicon. Even if Huawei had full access to TSMC's lines, it couldn't close this raw compute deficit overnight.
2. **Semiconductor manufacturing constraints and yield challenges:** Chinese foundries, mainly SMIC, not only lack access to advanced ASML machines at the leading-edge nodes (5nm, 4nm, and 3nm), but they still struggle to achieve satisfactory yields at 7nm. Chinese chips lag Nvidia's by about 40%, and catching up requires breakthroughs in manufacturing or architecture. Huawei's touted 6nm roadmap is likely to suffer even lower yields – further widening the efficiency and cost gap versus Nvidia.
3. **Immature software stack:** Nvidia's CUDA ecosystem is the industry standard for writing and tuning AI workloads. By contrast, Huawei's homegrown CANN framework is currently viewed as inferior by a long margin. Migrating entrenched AI developers away from CUDA is a multi-year, labour-intensive process—only Google has ever seriously attempted it.
4. **Power efficiency and system integration:** Nvidia's designs optimise for performance per watt and end-to-end integration with server hardware and data centre cooling. Huawei's alternatives consume significantly more power for the same work, undermining their appeal outside of a heavily subsidised domestic market.
5. **Network effects and scale economics:** Nvidia's chips benefit from a massive installed base and software tooling network effects. Huawei must nurture a developer community around its CANN software platform – an uphill battle against CUDA's entrenched advantages.

We think Nvidia's moat is unlikely to be broken by Huawei. Nvidia's domestic rival AMD has access to ASML's latest tools, TSMC manufacturing capacity, and can sell to the world's largest and most sophisticated data centre owners – and yet its market share in the AI chip segment remains in the single digits, while Nvidia's market share remains comfortably above 80%. Huawei's task in challenging Nvidia is even harder than AMD's.

With time, Huawei stands a chance to become a "good enough" alternative supplier. With aggressive state backing, clever evasion of some export controls, and the ability to scale in China, there is no doubt Huawei will make progress. Huawei's priority is meeting huge domestic demand, while some emerging markets are already testing Huawei's offerings, setting the stage for China's tech firms to expand geopolitical influence through AI deals once performance and reliability improve.

Conclusion

We expect that President Trump's new framework will focus on making it easier to export chips to Tier 2 countries, while keeping restrictions on China as stringent as practically possible. Previous restrictions on China are seen as insufficient, and the administration is determined to sandbag China's progress on AI technology. However, the acknowledgement that the previous framework might hurt US innovation suggests that the Trump administration is aware of the risk of China-US technology decoupling.

We expect the new framework to be more beneficial for Nvidia. In the near term, we don't expect the upcoming changes to have much impact because most of Nvidia's current revenues and profits are generated in the US and the Tier 1 countries. But as technology matures and is rolled out globally, we think Nvidia should benefit from easier access to fast-growing Tier 2 markets.

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