Updated U.S. Export Controls on Advanced Chips Seek to Close Loopholes and Push Allied Alignment

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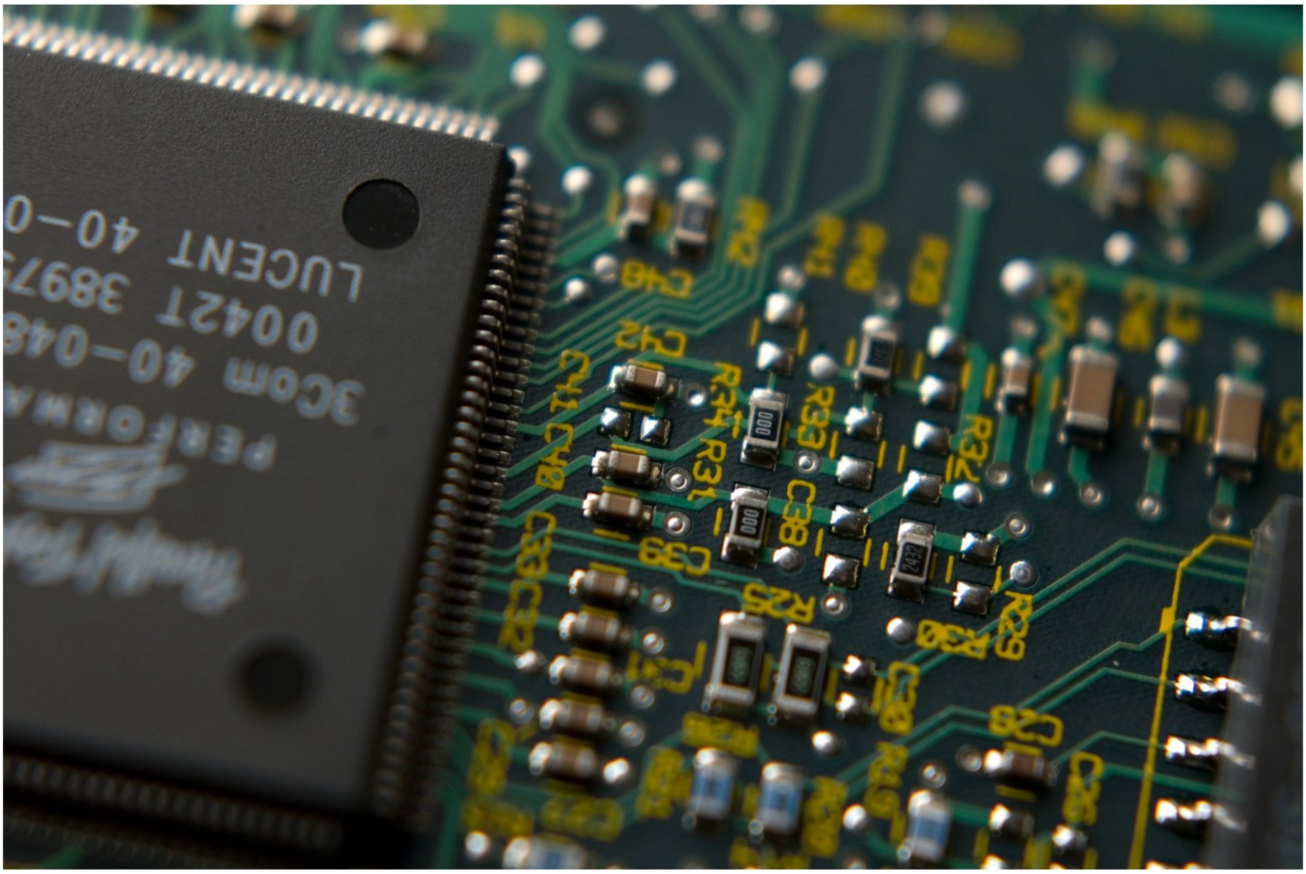

Key Takeaways

- The latest Department of Commerce export controls on advanced semiconductors and semiconductor manufacturing equipment seek to close existing loopholes by expanding controls on foreign exports of chipmaking tools that contain U.S. technology and restricting the trade of high bandwidth memory products critical for supporting data center growth and AI development.

- In exchange for carve-outs in the updated controls on chipmaking tools, Japan and the Netherlands are expected to announce their own, related export control policies in the coming days and weeks.

- China quickly responded by enforcing new "dual use" export controls on critical minerals to any U.S. military end users. Beijing may contemplate additional measures targeted at U.S. companies while also preserving political space to react to President-elect Trump's China policies in 2025.

- While the updated chip export control rules may be the last technology competition measure the Biden Administration unveils before the end of the term, the Commerce Department may seek to update the proposed "know your customer" rules for the cloud computing sector by the end of the year.

Closing Loopholes with Carve-outs for Allies

The U.S. Department of Commerce's Bureau of Industry and Security (BIS) announced on December 2 updates to export controls that limit China's access to advanced semiconductors and semiconductor manufacturing equipment in order to slow China's military modernization and use of advanced technologies that enable human rights abuses. These rules are the Biden administration's third major update in three years and are expected to serve as the final update before a change of administration. Major updates to the rules include prohibiting the sale of 24 types of manufacturing equipment and three software tools, in addition to adding 140 Chinese companies to the Entity List.

The updated controls close loopholes within the October 2022 and 2023 export control packages, including addressing gaps in scope by limiting export of high bandwidth memory (HBM) chips and preventing export control circumvention through application of the Foreign Direct Product Rule (FDPR). FDPR allows the United States to ban foreign manufacturers from using U.S. technologies, forcing de facto compliance by other nations with U.S. export control strategies. Most of the new measures will go into effect on December 31. Key details of the announcement include:

- Addition of 140 new Chinese companies to BIS Entity List: New additions to the Entity List largely focus on China's domestic semiconductor manufacturing equipment ecosystem, as well as capture a portion of suppliers and shell companies at risk of diversion to major Chinese chipmakers like Huawei and SMIC. Notably, the Entity Listings did not include subsidiaries of Huawei and CXMT, China's leading memory chipmaker, focused on development of HBM chips.

- Expansion of extraterritorial U.S. controls to shape global implementation of export controls with limited carve-outs: The Biden administration has signaled for months that it would use FDPR to encourage ally and partner alignment with U.S.-led export strategies. The updated controls include the use of FDPR in two major ways. First, FDPR is applied to certain semiconductor manufacturing equipment deemed "essential" to the production of advanced chips that have military applications. In exchange for FDPR carve-outs, Japan and the Netherlands are expected to announce their own, related export control policies within the coming weeks. Second, FDPR is now applied for the range of entities listed on the BIS Entity List that receive a special designation indicating they both actively support or are capable of supporting China's ability to develop advanced chips for military end uses.

- Application of first-ever restrictions on high bandwidth memory product exports: The December 2 announcement builds on previous restrictions regarding advanced logic chips by limiting the export of a range of high-bandwidth memory (HBM) products. HBM is critical to support data center development, AI training, and advanced supercomputing applications. Restricting HBM exports conveys that the Biden administration views China as making significant progress on dual-use AI products that stand to impact U.S. national security.

- Clarification of software restrictions: The rule clarifies that software license keys that allow access to controlled "software" or hardware are subject to existing export control regulations related to chips and chipmaking tools.

Beijing's Initial Response

In response to the updated controls, China announced that it would ban the export of any products or materials deemed "dual-use" to any U.S. military end user. The new prohibition would, in principle, ban the export of minerals like gallium, germanium, antimony, and superhard materials critical to the production of key technologies to U.S. users Beijing determines support the U.S. military. It remains to be seen how broadly Beijing interprets the definition of military end use in implementation of the ban. China's Ministry of Commerce previously retaliated to U.S. chip controls in 2022 and 2023 by establishing restrictions on the export of gallium, germanium, and other rare earths and critical minerals.

Additionally, four major industry associations in China called on their member companies to reevaluate buying U.S. chip products and source chips domestically and from foreign partners more friendly to China. According to the statement designed to encourage a nationalist boycott, "U.S. chip products are no longer reliable, secure, and we call on all businesses in China to be extremely cautious when you make decision to buy American chip products."

The United States is currently the sixth largest exporter of chips to China – trailing Taiwan, South Korea, Malaysia, Japan, and Vietnam – according to Chinese customs data. In the first 10 months of 2024, China imported approximately USD 9.6 billion in chips from the United States, an increase of roughly 46 percent over

2023 levels. In 2024, China has imported approximately USD 315.37 billion in foreign chips, an increase of roughly 11 percent over 2023 levels.

The move represents an evolution in coordination between Chinese government and government-backed industry associations to respond to U.S. technology strategy. In October, China's state-backed cybersecurity association issued a statement encouraging the Cybersecurity Administration of China to investigate U.S. chipmaker Intel for security risks. In the latest statement, the same organization called for a new investigation into the security of critical information infrastructural facility supply chains which could affect foreign cloud businesses operating in China.

Taken together, China's actions demonstrate an increased confidence in its ability to not only retaliate to U.S. tech measures but to proactively shape domestic market dynamics for major U.S. and foreign chip companies still operating and selling into China. The timing of these measures, coming before the transition in U.S. administrations in January, also sends a signal that China is prepared to retaliate to the policies of the incoming Trump administration which may feature more expansive tariffs and technology denial measures.

Future Watchpoints

- Both China and the United States have additional tools to escalate export control tit-for-tat in the coming weeks. The Biden administration may finalize "know your customer" rules that would increase reporting and due diligence requirements for cloud computing providers. Some see updating this rule as complementary to December 2 export controls on high bandwidth memory chips.

- China could opt either to increase export controls as outlined above and/or launch a state-led review of critical infrastructure supply chains. The Chinese government may also follow through on formal targeting of intel. A state-led review of Intel would have limited impacts on the sector more broadly but would allow Beijing to message its displeasure and display its enforcement reach.

- Finally, China understands that President-elect Trump is expected to implement his own China policy priorities upon taking office in January. Beijing may seek to preserve some political space in its response to Biden's technology strategy to calibrate for a new suite of tariffs and China policy priorities implemented by an incoming Trump administration in 2025.

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