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Memorandum

U.S. Comprehensive Upgrade of Its Controls on Semiconductor Exports to China

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On October 7, 2022, the Bureau of Industry and Security of the U.S. Department of Commerce ("BIS") issued regulations aimed at curbing China's ability to acquire high-end chips and manufacture advanced semiconductors.

Just over one year later, on October 17, 2023, BIS released two new rules related to exports of semiconductors to China with an effective date of November 17.[1] (Note that in an SEC filing released on October 24, 2023, Nvidia stated that it was informed by the U.S. government that the licensing requirements under the new rules are effective immediately as applied to certain Nvidia products.) The new rules are presented as an update to last year's measures, but would perhaps be more accurately described as a comprehensive upgrade of the existing controls.

Following an assessment of the enforcement of, and relevant parties' compliance with, the existing rules, BIS significantly expanded the scope of controlled items in the new rules, extended the geographic scope of licensing requirements beyond China, and added two Chinese chip technology companies and their affiliates to the Entity List.

In its Press Release announcing the new regulations, BIS makes clear that the new rules are intended to shut off pathways to evade the U.S. export controls.[2] The new rules will capture chips tailor-made for China, such as the A800 and the H800 chips designed by Nvidia, that were just outside the scope of the October 2022 rules. Alternative arrangements being used by Chinese companies, such as building data centers in third countries to provide computing power, will now be restricted under the new rules as well. In addition to closing loopholes, the new rules continue the U.S. national security strategy of seeking to maintain as large of a lead as possible in the AI and supercomputer sectors, and are expected to have long-term impact on the emerging Chinese chip technology industry.

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[1] Text of the new rules can be found on the BIS official website: Implementation of Additional Export Controls: Certain Advanced Computing Items; Supercomputer and Semiconductor End Use; Updates and Corrections Interim Final Rule, available at https://public-inspection.federalregister.gov/2023-23055.pdf; Export Controls on Semiconductor Manufacturing Items Interim Final Rule, available at https://public-inspection.federalregister.gov/2023-23049.pdf.

[2] *See* BIS's press release on October 17, 2023 (local time) (Commerce Strengths Restrictions on Advanced Computing Semiconductors, Semiconductor Manufacturing Equipment, and Supercomputing Items to Countries of Concern–Updates to Modify and Reinforce Restrictions Initially Released on October 7, 2022, to Address National Security Concerns Posted by PRC Military Modernization, *see* https://www.bis.doc.gov/index.php/documents/about-bis/newsroom/press-releases/3355-2023-10-17-bis-press-release-acs-and-sme-rules-final-js/file for more information).

This article will focus primarily on three major changes made by the new rules: the extension of the scope of controlled items, the expansion of controlled destinations and end-users, and the additions to the Entity List.

1. Extension of the Scope of Controlled Items

ADJUSTING THE PARAMETERS DEFINING CHIPS SUBJECT TO CONTROLS: A CHIP WILL BE SUBJECT TO CONTROLS IF PERFORMANCE PARAMETERS ARE MET

Under the current rules, a chip is subject to export controls only when both its processing performance (primarily focused on TOPS, "Tera Operations per Second") and interconnect bandwidth exceed certain thresholds. The new rules remove the interconnect bandwidth parameter and replaces the original processing performance parameters with total processing performance. The introduction of performance density parameters in particular is an effort to prevent export control evasions via assembling multiple chips to increase overall computing power. Under the new rules, chips whose total processing power meets a certain threshold, or chips whose total processing power and performance density meet certain thresholds, will be defined as high-performance chips and thus subject to export controls.

After the introduction of the rules last year, Nvidia and other companies tailor-made special chips for China, reducing their interconnect bandwidth without changing the peak processing performance so as to fall just outside the scope of last year's rules. When the new rules come into effect, however, it is expected that exports of Nvidia A800, H800, L40S, Intel's AI training chip Gaudi2, and other China-special chips will also presumably be controlled. Systems that incorporate the above controlled chips, including but not limited to Nvidia DGX, HGX systems, will also be subject to the new rules.[3]

CARVE-OUTS: "GRAY ZONE" CHIPS MAY BE EXPORTED TO CHINA ONLY UPON PRIOR NOTIFICATION

In addition to expanding the scope of control of high-performance chips, the new rules also imposed controls on consumer-grade chips which are less powerful in performance but could still be used to train large-scale AI systems. BIS officials have called this type of chips "gray-zone" chips. The new rules establish "License Exception Notified Advanced Computing," which allows the export of "gray zone" chips to China and certain other countries, provided, however, that the exporter has informed BIS in advance and receives confirmation regarding the applicability of the exception.

Exporters who plan to export or re-export such "gray zone" chips to China (including Hong Kong and Macao) and certain other countries will be required to file a prior notification with BIS with details of the transaction. BIS will, within 25 days of receipt of such notification, provide a confirmation as to whether the license exception applies to such transactions. BIS states in the new rules that this notification process was established to provide BIS and its

[3] As stated in the Form 8-K report filed by NVIDIA Corporation to SEC on October 17, 2023, the products covered by U.S. export controls as updated by the new rules include, but are not limited to, the A100, A800, H100, H800, L40, L40S, and RTX 4090. *See* https://www.sec.gov/Archives/edgar/data/1045810/000104581023000217/nvda-20231017.htm

interagency export controls partners the opportunity to evaluate the national security risk posed by such "gray zone" chips.

While BIS calls this process a license exception, the novel notification requirements effectively establish a simplified license application procedure for "gray zone" chips. BIS officials said that the goal with the notification is to provide a streamlined and efficient approach to the gray-zone chips that does not take the length of time that is associated with license applications. BIS plans to publish additional guidance regarding this process in the near future.

TIGHTENED CONTROLS ON SEMICONDUCTOR MANUFACTURING EQUIPMENT: TARGETING FOREIGN-PRODUCED LITHOGRAPHY EQUIPMENT

The new rules added a number of semiconductor manufacturing equipment, technologies and software to the Commerce Control List when destined for China and other restricted countries and further refined the restrictions on key equipment used in advanced semiconductor production lines.

Of particular note, BIS eliminated the *de minimis* threshold with respect to certain foreign-made lithography equipment, which is indispensable for manufacturing advanced chips. This means that the United States can exercise jurisdiction over specific foreign-produced lithography equipment as long as they incorporate any U.S.-controlled content. Under the new rules, unless a third country maintains an equivalent export control on the same lithography equipment,[4] a license from BIS is required to export controlled foreign-made lithography equipment from that third country to China (as well as other U.S. arm embargoed countries).

ASML, the world's leading lithography equipment manufacturer, will be directly affected by these rules. Although the Dutch government announced in June this year that it would impose export controls on the most advanced deep ultraviolet (DUV) lithography equipment, it has not yet included some lower-performance DUV lithography equipment (such as ASML 1980Di) in its control list. Under the new rules, ASML would likely have to apply for a license from BIS before exporting these slightly less advanced lithography equipment to China.

2. Expansion of Controlled Destinations and End Users

THE NUMBER OF CONTROLLED DESTINATIONS INCREASED FROM ONE COUNTRY (*I.E.*, CHINA) TO MORE THAN 40 COUNTRIES

Last year's rules restrict exports, re-exports and in-country transfers to or within China (including Hong Kong and Macao) only. The new rules, which aim to prevent diversion of controlled items from third countries to China, significantly expand the scope of controlled destinations.

[4] BIS's footnote in the new rules indicates that only Japan has adopted equivalent controls because it "added ArF-wet lithography equipment and other advanced semiconductor manufacturing equipment to its control list for all regions on July 23, 2023."

Under the new rules, a license is required for the export of controlled chips and related products to any of the other 22 U.S. arms embargoed countries[5] and license applications will be reviewed under a presumption of denial. Other related semiconductor control measures against China under the existing rules (including end-use controls, "U.S. person" controls, and "foreign direct product" (FDP) rules) will be extended to all U.S. arm embargoed countries accordingly.

A license is also required for the export of controlled chips and related products to more than twenty other specific countries, including many Middle Eastern countries,[6] but such license applications will be reviewed on a case-by-case basis by BIS under a presumption of approval.

ALL CHINA-HEADQUARTERED COMPANIES WILL BE SUBJECT TO CONTROLS, THEREBY RESTRICTING EXPORTS TO OVERSEAS SUBSIDIARIES AND FOREIGN BRANCHES OF CHINESE FIRMS

As mentioned at the beginning of this article, under the existing rules, subsidiaries or affiliates of Chinese companies outside China could purchase advanced chips from abroad and set up data centers or servers in third countries with the goal of providing entities in China with access to high-performance computing power, enabling Chinese companies to perform data analysis or train AI models on the cloud.

Under the new rules, a license is required for exports, re-exports or in-country transfers of controlled chips and related products to any entity which is headquartered, or whose ultimate parent is headquartered, in China or any of the other U.S. arm embargoed countries, wherever the entity itself is located in the world. This rule is intended to close off the third-country workaround described above.

However, two issues of note: First, the new rules have not defined "ultimate parent" or "headquartered." BIS is specifically seeking the public's comment on this. We anticipate BIS to provide clearer definitions in the final regulations or future guidance to enable exporters to identify their customers and comply with the new rules.

Second, the new rules also solicit public comments on potential new regulations on infrastructure as a service (IaaS) providers. The rules note that training large AI models through IaaS data servers could raise U.S. national security concerns. The U.S. government was previously reported to be mulling new IaaS-related controls to restrict U.S. cloud providers from providing services to Chinese customers.

[5] The list includes: Afghanistan, Belarus, Burma, Cambodia, Central African Republic, China, Democratic Republic of the Congo, Cuba, Cyprus, Eritrea, Haiti, Iran, Iraq, North Korea, Libya, Lebanon, Russia, Somalia, Republic of South Sudan, Republic of the Sudan, Syria, Venezuela and Zimbabwe.

[6] The list includes: Armenia, Azerbaijan, Bahrain, Egypt, Georgia, Jordan, Kazakhstan, Kuwait, Kyrgyzstan, Laos, Moldova, Mongolia, Oman, Pakistan, Qatar, Saudi Arabia, Tajikistan, Turkmenistan, United Arab Emirates, Uzbekistan, Vietnam and Yemen.

3. Update of the Entity List

Along with the new rules, BIS also announced that it has added two of China's leading chip design companies, Biren Technology and Moore Thread, as well as their subsidiaries, totaling 13 entities, to the Entity List.[7] Effective immediately as of October 17, all exports, re-exports, and in-country transfers of any items subject to U.S. export controls to the listed companies will require a BIS license, with a review policy of presumption of denial.[8]

Perhaps more damaging to the two Chinese chip companies is the new footnote 4 being designated for all newly-added entities. Under this footnote, a prior license must be obtained from the BIS for any foreign-produced item that is a direct product of (or is produced by a plant or a major component of a plant that is itself the direct product of) specific U.S.-origin software or technology related to semiconductors and that, to the knowledge of the exporter, will be eventually used by these 13 listed entities. Due to this restriction, the two Chinese chip design companies are expected to encounter a number of obstacles in conducting tape-out overseas.

In addition, the new rules have expanded and refined many other aspects of the existing controls, including the "U.S. person" control rules and due diligence red flags. The new rules have also codified a large part of the official FAQs released on October 28, 2022.

Conclusions

Expanding on last year's rules, the new rules have tightened overall control on China's semiconductor industry, while targeting individual emerging chip companies through the Entity List – a clear sign that the United States intends to continue using export controls to advance its leading position in the artificial intelligence and supercomputer sectors. As U.S. Secretary of Commerce Gina Raimondo said, the new rules are intended to significantly slow China's development of "next generation frontier" artificial intelligence technology, and that the administration plans to update the rules "at least annually."

With such evolving regulatory environment in the semiconductor sector, businesses face increasingly complex compliance challenges. We will also closely monitor any developments of the new rules.

[7] The newly listed Chinese enterprises can be found on the official website of BIS: https://www.bis.doc.gov/index.php/documents/federal-register-notices-1/3354-10172023-public-inspection/file.

[8] The Entity List additions and supplementary information can be found on the official website of BIS: https://www.bis.doc.gov/index.php/documents/federal-register-notices-1/3354-10172023-public-inspection/file.

If you have any questions about this article, please feel free to contact our Compliance and Sanctions team or any of the contacts below:

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