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CLIENT ALERT

U.S. Expands Year-Old Semiconductor Export Controls, With Additional Controls on the Way

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The U.S. Department of Commerce's Bureau of Industry and Security ("**BIS**") issued much-anticipated updates to its October 2022 regulations (the "**October 2022 IFR**") targeting the Chinese semiconductor industry, by publishing two new interim final rules ("**IFRs**") on October 17 that significantly expand upon the existing restrictions.

What are the new rules?

As detailed below, the new IFRs expand and clarify the October 2022 IFR in four key areas:

- First, in order to combat evasion of the October 2022 IFR, BIS increased the number of computer chips controlled for export (*see* Section I below).
- Second, in a measure intended to impact China's ability to engineer cutting-edge semi-conductors, BIS implemented additional controls over a wide array of semiconductor manufacturing equipment ("**SME**") (*see* Section II below).
- Third, BIS significantly increased the number of countries to which the controls on semi-conductors and SME manufacturing equipment apply, whereas the October 2022 IFR primarily targeted China and Macau (*see* Section III below).
- Finally, BIS also clarified what activities would be considered "facilitation" of the export, reexport, or transfer of an item controlled pursuant to the updated regulations by a U.S. person, which would require a license from BIS (*see* Section V below).

In addition to the expansion and clarifications provided by the new IFRs, BIS also introduced a new license exception, which authorizes the export of certain advanced computing items when they are made pursuant to a written purchase order and provided that the exporter makes required notifications to BIS (*see* Section IV below). The Temporary General License ("**TGL**") for certain advanced computing items was revised to authorize certain exports that would otherwise require a license pursuant to the controls imposed by the October 2022 IFR and the new IFRs.

When do the new rules go into effect?

The new IFRs, the "Implementation of Additional Export Controls: Certain Advanced Computing Items; Supercomputer and Semiconductor End Use; Updates and Corrections Interim Final Rule" ("**AC/S IFR**") [1] and the "Export Controls on Semiconductor Manufacturing Items Interim Final Rule" ("**SME IFR**"),[2] will be effective on November 17, 2023 and public comments to the new IFRs are open through December 18, 2023. The revisions to the TGL were immediately effective upon publication of the IFRs.

What does this mean for semiconductor and other impacted companies?

Impacted companies should identify any items they export that are captured by the expanded number of controlled items and evaluate the extent to which the expanded end use and end user restrictions impact their business and supply chain logistics. Freight forwarding and other companies providing export services should also ensure that they are not captured by the license requirements for those "facilitating" the export of controlled items. The U.S. government has clearly signaled its intent, both with the new IFRs and in prior actions, to ensure that China and other designated countries do not receive controlled semiconductors, SME, and other items related to advanced computing and artificial intelligence. Accordingly, companies should ensure that their compliance measures are updated in order to comply with the licensing requirements imposed by the IFRs.

Companies should consider using the comment period to request clarifications of the IFRs where necessary and identify the impact of the new IFRs on their business and competitiveness in the global economy.

I. NEW PARAMETERS FOR IDENTIFYING ADVANCED SEMICONDUCTORS THAT REQUIRE A LICENSE

When BIS issued the October 2022 IFR, it identified the controlled chips in the new 3A090 ECCN based on measures of how many computations the chip could perform over a given period and the speed with which it could send information to other chips. PRC companies and semiconductor manufacturers soon realized that throttling certain performance metrics would remove chips from the control regime, while providing similar performance (particularly when chained together). The

[1] *Available at* https://www.bis.doc.gov/index.php/documents/federal-register-notices-1/3353-2023-10-16-advanced-computing-supercomputing-ifr/file.
[2] *Available at* https://www.bis.doc.gov/index.php/documents/federal-register-notices-1/3352-10-16-23-semiconductor-equipment-controls/file.

most high-profile example of this dynamic in action was Nvidia reportedly modifying its top-of-the-line H100 GPU into an export control-friendly H800 GPU that it continued to sell in China.[3]

In response to such activity, BIS has now revised the way it determines that a given chip (or "**integrated circuit**" or "**IC**" in BIS's parlance) is subject to control. In addition to a baseline performance metric—the theoretical peak number of tera (10^12) operations per second for multiply-accumulate computation—BIS has also added a metric it calls "performance density." Performance density is a measure of performance over surface area, so quite literally reflects how physically dense the performance capabilities of the IC are. In BIS's words, the goal of this addition is to "ensure that [integrated circuits] below the [prior] ECCN 3A090 parameters that were still useful for training advanced AI with military applications would be controlled." Practically, the addition of the "performance density" metric ensures that chipmakers cannot bypass the controls by packing additional computational performance into smaller ICs and chaining them together. "Performance density" gives BIS a fixed standard for level of computational power permissible to export absent a license.

The new interim final rule revises ECCN 3A090 to incorporate the performance density metric, and makes conforming changes to ECCN 3A991.p. In addition, the previous controls had included "any other item on the CCL that meet or exceed the performance parameters of 3A090…." In response to public comments that this was difficult for parties to identify in relevant ECCNs, BIS added new .z paragraphs to nine ECCNs throughout the EAR that incorporate the new 3A090 standards (3A001.z, 4A003.z, 4A004.z, 4A005.z, 5A002.z, 5A004.z, 5A992.z, 5D002.z, and 5D992.z).

The rule also adds a new Note 2 to ECCN 3A090 that specifies that integrated circuits "not designed or marketed for use in datacenters" and not meeting a specific performance threshold are not covered by 3A090. BIS has explained that its intent with this note is to "ensure that as implementation occurs in the future, the expanded ECCN 3A090.a and .b control parameters do not increasingly control certain non-datacenter [chips]."

II. NEW SEMICONDUCTOR MANUFACTURING EQUIPMENT LICENSING REQUIREMENTS

In a move meant to restrict China's access to the means of producing advanced semiconductors domestically, the SME IFR significantly expands the types of SME controlled by the EAR. BIS also took the opportunity to clarify certain ECCNs created or updated by the October 2022 IFR. The additions range from equipment designed for silicon growth with specified parameters to semiconductor wafer fabrication cleaning and removal equipment, evidencing the fact that BIS is targeting equipment used in every stage of the manufacturing process for semiconductors.

The SME IFR also identified the importance of state-of-the-art lithography equipment to production of more advanced and smaller advanced node ICs and took steps to further restrict access to such an important part of the manufacturing process. The SME IFR specifies that that there is no *de minimis* level for lithography equipment that meets the parameters of ECCN

[3] *See, e.g.*, Sevastopulo, Demetri and Liu, Qianer, "US tightens rules on AI chip sales to China in blow to Nvidia," *Financial Times* (Oct. 17, 2023), *available at* https://www.ft.com/content/be680102-5543-4867-9996-6fc071cb9212.

3B001.f.1.b.2.b when it will be used in the development or production of advanced-node integrated circuits unless it is being exported from a country that would itself control the specified equipment.[4] This means that any controlled U.S.-origin content, regardless of the value, incorporated into an otherwise foreign-produced item will cause the foreign-produced item to be subject to controls described in 3B001.f.1.b, resulting in licenses being required for exports, reexports, and transfers to or within either Macau or a destination specified in Country Group D:5 in supplement No. 1 to part 740 of the EAR.

III. NEW GEOGRAPHIC SCOPE BEYOND CHINA

In addition to expanding and clarifying the scope of semiconductors, SME, and advanced computing items that are controlled for export, BIS also expanded the list of countries for which an export of such items will require a license. This expansion applies to National Security controls on SME, Regional Stability controls for advanced integrated circuits, the advanced computing Foreign Direct Product ("**FDP**") Rule included in the October 2022 IFR, and supercomputer and semiconductor end use controls. Both new IFRs cite diversion to China as a primary reason for these controls, noting China's goals of surpassing the United States and its allies in military capability[5] and of creating and securing an indigenous supply chain for advanced-node integrated circuits,[6] while also highlighting how such technology, if provided to countries of concern, could be used to develop capabilities that could challenge U.S. defenses.

a. National Security Controls on SME

Whereas these controls were initially restricted to China, before being expanded to also include the Special Administrative Region of Macau, BIS has expanded the targeted countries to those listed in Country Group D:5, which is comprised of countries subject to U.S. arms embargoes.[7] BIS will review license requests with a presumption of denial.

b. Regional Stability Controls for Advanced Integrated Circuits

While Regional Stability controls were initially implemented by the October 2022 IFR to specifically target the export, reexport, or transfer to or within China and Macau of controlled advanced integrated circuits and their related technology and software, the AC/S IFR expands this to include Country Groups D:1, D:4, and D:5 that are not also not specified in Country Groups A:5 or A:6.[8] BIS has indicated that licenses related to exports to or within destinations not specified in

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4 This carve-out effectively leaves control of ASML equipment—manufacturer of the most advanced extreme ultraviolet lithography tools—to the Netherlands, which this year (after substantial lobbying by the United States) enacted controls meant to complement BIS's regulations.

5 *See* AC/S IFR at 58-59.

6 *See* SME IFR at 56.

7 The list of D:5 countries includes Afghanistan, Belarus, Burma, Cambodia, Central African Republic, China, Democratic Republic of Congo, Cuba, Cyprus, Eritrea, Haiti, Iran, Iraq, Lebanon, Libya, North Korea, Russia, Somalia, South Sudan, Sudan, Syria, Venezuela, and Zimbabwe. *See* Supplement No. 1 to Part 740.

8 In addition to the D:5 countries listed above, the expanded list also includes Armenia, Azerbaijan, Bahrain, Egypt, Georgia, Jordan, Kazakhstan, Kuwait, Macau, Moldova, Mongolia, Tajikistan, Turkmenistan, the United Arab Emirates, Uzbekistan, Vietnam, and Yemen. *See Id.* Note that Israel, which is a D:4 country, and Cyprus, which is a D:5 country, would not be included as they are listed in Country Group A:6.

Country Group D:5, which includes China, or Macau will be reviewed on a presumption-of-approval basis. However, licenses requested for exports to or within D:5 countries or Macau will be reviewed with a presumption of denial.

c. Advanced Computing FDP Rule

Similar to the Regional Stability controls, the AC/S IFR expanded the scope from China and Macau to include Country Groups D:1, D:4, and D:5 that are not also not specified in Country Groups A:5 or A:6. Notably, the scope extends worldwide when the direct product is to or for an entity headquartered in Macau or a D:5 country or when such an entity is a party to the transaction involving the foreign-produced item, including as a purchaser, intermediate consignee, or end user.

d. Supercomputer and Semiconductor End Users

The AC/S IFR adds end use license requirements for supercomputers and semiconductors as identified in the Commerce Control List, requiring a license for the export, reexport, or transfer to or within any destination not specified in Country Groups D:1, D:4, and D:5 (that are not also not specified in Country Groups A:5 or A:6) if the exporter, reexporter, or transferor has "knowledge" at the time of export, reexport, or transfer that the item is going to an entity headquartered in, or whose ultimate parent company is headquartered in, either Macau or a D:5 country.

IV. NEW LICENSE EXCEPTION NAC AND UPDATING TEMPORARY GENERAL LICENSE – ADVANCED COMPUTING ITEMS

Throughout the new AC/S IFR, BIS emphasizes that the controls are focused on advanced semiconductor products and are not intended to prevent the export of consumer-grade products. Moreover, BIS has been clear that its concerns with respect to advanced semiconductors and SME is related to the development of Chinese military and surveillance capabilities using these technologies. Accordingly, BIS has introduced a new License Exception and updated the relevant Temporary General License ("**TGL**") in an attempt to minimize the impact of the controls on supply chains for companies headquartered in allied countries.

a. License Exception NAC

To that end, BIS has introduced a new License Exception—Notified Advanced Computing or "**NAC**"—that is added to the EAR at § 740.8 (previously reserved). License Exception NAC will authorize exports of any item classified in ECCN 3A090—or the related items in 4A090 or any of the .z paragraphs identified above—*except* for items that are "designed or marketed for use in a datacenter" and that meet the parameters of 3A090.a (the most powerful chips). To be eligible for License Exception NAC, the export or reexport must be made pursuant to a written purchase order. Moreover, for exports or reexports to Macau or a country subject to U.S. arms embargoes, the exporter must notify BIS at least 25 days prior to making the export or reexport. The 25-day review period will provide BIS an opportunity to review the transaction and deny the use of License Exception NAC in cases it deems appropriate.

License Exception NAC will not be able to overcome end user and end use-based controls (EAR Part 744) or embargo-based controls (EAR Part 746; e.g. Sanctions against Russia and Belarus). And License Exception NAC may never be used for an export, reexport, or transfer intended for a military end user or for a military end use.

b. Temporary General License – Advanced computing items

The AC/S IFR also revises TGL – Advanced computing items, located in Supplement No. 1 to Part 736 of the EAR, paragraph (d) (General Order No. 4). The revised TGL – Advanced computing items overcomes the Regional Security-related licensing requirements discussed above for products that are within scope (effectively all of the ECCNs discussed above). The TGL is applicable for exports to recipients located in, but not headquartered in or whose ultimate parent company is not headquartered in, a destination specified in Country Groups D:1, D:4, or D:5 that is not also specified in Country Groups A:5 or A:6. The end use scope of this TGL authorizes entities to continue or to engage in integration, assembly (mounting), inspection, testing, quality assurance, and distribution of covered items for ultimate end use: (1) outside of destinations specified in Country Groups D:1, D:4, or D:5, excluding destinations also specified in Country Groups A:5 or A:6, and (2) by entities that are not headquartered in, or whose ultimate parent company is not headquartered in, Macau or Country Group D:5.

BIS's stated intent with this revised TGL is to prevent disruptions to supply chains of companies located in countries that have cooperated with the U.S.'s efforts in this area, but who still have significant semiconductor production facilities in China. At the same time, BIS is trying to prevent circumvention of the these controls via the use of foreign subsidiaries of Chinese companies to facilitate the purchase of otherwise controlled chips and SME. The increased applicability of the TGL, coupled with the more restrictive geographic scope, is BIS's attempt to thread this needle.

V. CLARIFICATIONS

The October 2022 IFR imposed licensing requirements on U.S. persons for specified activities that would constitute support for certain weapons of mass destruction-related end uses. The SME IFR and AC/S IFR clarify and expand the types of activities and items covered by those license requirements. Under the amendments to EAR § 744.6, a license will be required for any U.S. persons that engage in shipping, transmitting, or transferring; facilitating such shipments, transmission, or transfers; or servicing activities to or within:

- China or Macau any items not subject to the EAR where the U.S. person knows that the items will be used in the development or production of advanced node-integrated circuits at a facility of an entity headquartered in either China or Macau;
- China or Macau any items not subject to the EAR that meet the parameters in any ECCN in Product Groups B-E of Category 3 of the CCL that the U.S. person knows will be used in the development or production of integrated circuits at a facility of an entity headquartered in either China or Macau, but does not know whether the production of advanced node-integrated circuits occurs at the facility; or

- Macau or any D:5 country any items not subject to the EAR and meeting the parameters of the SMEs added to the EAR or updated by the SME IFR regardless of the end use or end user.

The types of support activities were further clarified by the AC/S IFR and include authorizing or conducting a delivery by shipment, transmittal, or transfer of items meeting the above description and servicing, including maintaining, repairing, overhauling, or refurbishing such items. That said, servicing activities do not require a license unless they are at a facility where the production of advanced node-integrated circuits occurs. Another exclusion provided in the SME IFR states that the production does not apply to back-end steps such as assembly, test, or packaging, highlighting BIS's focus on items that raise the level of any integrated circuitry being produced at such facilities.

VI. POSSIBLE NEXT STEPS

As part of the AC/S IFR, BIS solicits public input on a number of topics, several of which give possible insight into future updates to these controls.

Of particular note is BIS's request for input "[a]ddresing access to 'development' at an infrastructure as a service (IaaS) provider by customers to develop or with the intent to develop large dual-use AI foundation models with potential capabilities of concern."[9] This references multiple reports that have arisen since publication of the October 2022 IFR that Chinese AI companies have resorted to effectively "renting" access to controlled advanced semiconductors from foreign (*i.e.*, non-Chinese) providers via the cloud. If adopted on a large scale, this could have the potential to undermine the U.S. controls by obviating the need for Chinese developers to have physical access to controlled semiconductors. However, implementing controls that would restrict such access is complicated by the fact that the U.S. has not historically considered the provision of software as a service ("**SaaS**") to be an "export" (of software) within the definition used by the EAR (and a significant number of U.S. businesses rely on this distinction). Accordingly, attempting to bring IaaS within the scope of BIS's controls, while continuing to exclude SaaS from coverage, will be an important needle to thread for the continuing vitality of both BIS's export control policy with respect to China and the U.S. service sector's exports.

BIS is also continuing to seek technical input on methods for narrowing the controls while preventing items from being used in concert to circumvent the controls' intent.[10] Essentially, BIS would like to build on the premise of the "performance density" concept to limit the ways in which controlled items, or items immediately below the control threshold, could be linked together to achieve performance results the overall policy is meant to restrain. At the same time, BIS is at least paying lip service to doing so in a manner that is not overly burdensome on suppliers and producers.

[9] AC/S IFR at p. 103.
[10] AC/S IFR at pp. 104 (para. 2) and 106 (para. 5).

VII. KEY TAKEAWAYS

These IFRs take seriously and respond substantively, if incompletely, to challenges to BIS's initial round of advanced semiconductor and computing export controls that were released in the October 2022 IFR. The new IFRs demonstrate that the perceived importance of the threat posed by China's increasing domestic technological base has not decreased over the past year, despite the persistence of other high-priority export control challenges (such as Russian evasion of multilateral controls). BIS's rollout of these updates, though expected, demonstrates that the U.S. government intends to see through its restrictions on the Chinese semiconductor industry in the face of concerns over effectiveness and circumvention that have arisen over the past year.

By expanding the geographic scope the controls are applicable to, and introducing the "performance density" parameter, BIS has revealed that it is trying to actively address the methods Chinese firms have resorted to in efforts to skirt the controls implemented by the October 2022 IFR. Moreover, that BIS did not respond to performance throttling (*i.e.*, the Nvidia H800) by simply shifting the pre-existing performance threshold downward, shows that it is committed to creating—even if in fits and starts—durable standards for exporters to abide by.

As noted above, both new IFRs enter into force on November 17, 2023,[11] and the deadline for public comment on the rules is December 18, 2023. Following the publication of the October 2022 IFR, BIS conducted a significant outreach campaign, including publication of new FAQs, and virtual briefings and written presentations by various senior Commerce Department officials for interested parties and industry members. We would expect a similar effort to be conducted in concert with these updates in the forthcoming weeks and months. Further, we anticipate that updates to these controls will become a regular feature as BIS fine-tunes its approach and the semiconductor industry achieves technological advancements (and indeed, BIS has made clear that further rulemaking is coming). Throughout the explanation accompanying both IFRs, BIS repeatedly emphasizes that it does not intend to capture consumer-oriented products via these controls, and the continued improvements in the capabilities of such products ensures that these controls will warrant revisiting.

We would encourage those with impacted operations to participate in BIS's solicitation of public comment, and to reach out to the Willkie attorneys listed below if you have questions regarding the updates to these far-reaching controls.

[11] The lone exception is the new TGL, which was effective immediately.

If you have any questions regarding this client alert, please contact the following attorneys or the Willkie attorney with whom you regularly work.

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