U.S. GOVERNMENT IMPOSES SIGNIFICANT NEW EXPORT CONTROLS ON SEMICONDUCTOR, SEMICONDUCTOR MANUFACTURING EQUIPMENT, AND SUPERCOMPUTER-RELATED TRANSACTIONS INVOLVING CHINA AND CHINESE ENTITIES

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U.S. Policy and Regulatory Alert

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On 7 October 2022, the U.S. Department of Commerce's Bureau of Industry and Security (BIS) issued two Interim Final Rules (collectively, The Rule) that significantly enhance U.S. export controls as applied to advanced integrated circuit (IC) products, related manufacturing equipment and technology, and supercomputers where the destination or ultimate end use is China. The Rule was published in the Federal Register 13 October 2022, and can be accessed here and here.

The Rule follows an extensive consideration by various national security agencies within the U.S. government of the impact of advanced computing ICs, supercomputers, and IC manufacturing equipment on enabling military modernization, development of weapons of mass destruction, and human rights abuses in China. As stated in the preamble to the Rule, “[t]he Government of the People's Republic of China (PRC or China) has mobilized vast resources to support its defense modernization, including the implementation of its military-civil fusion development strategy, in ways that are contrary to U.S. national security and foreign policy interests.”

The Rule implements changes to the U.S. Export Administration Regulations (EAR), 15 C.F.R. Part 730 et seq., which is the primary U.S. export control regime for commercial and dual-use goods. The EAR generally applies to “items subject to the EAR,” which include items exported from the United States, items produced in the United States, foreign-produced items incorporating certain controlled U.S. content, and—especially important here—items produced entirely outside the United States that are the direct product of certain U.S. technology or software or produced from equipment that itself is the direct product of certain U.S. technology or software. Because of the extraterritorial nature of U.S. export control laws, and the Rule in particular, it is important for any company involved directly or indirectly with the IC or supercomputer sectors in China, including non-U.S. companies, to assess how the Rule may impact their operations. The Rule further prohibits U.S. persons from engaging in certain activities related to the development and production of certain ICs and supercomputers in China, even if no items subject to the EAR are involved. The provision restricting activities by U.S. persons formerly applied only to WMD related activities.

The Rule is extensive and results in complex changes to EAR. The following is a high-level summary of the most salient changes resulting from the Rule.

NEW EXPORT CONTROLS FOR ADVANCED COMPUTING ICS, RELATED PRODUCTION EQUIPMENT, AND COMPUTERS CONTAINING THESE CHIPS

Effective 7 October 2022, the Rule expanded EAR-based export controls to certain high-performance ICs, computers incorporating those ICs, and related technology and software, through the additional of several new Export Control Classification Numbers (ECCNs) to the EAR's Commerce Control List (CCL). These controls apply for exports and reexports to and transfers within China.

Specifically, new ECCN 3A090 controls certain specifications of high-performance ICs that have or are programmable to have an aggregate bidirectional transfer rate over all inputs and outputs of 600 GB/s or more to or from integrated circuits other than volatile memories. In parallel with this new control, ECCN 3B090 is created to control certain advanced IC manufacturing equipment not currently controlled under the CCL that could potentially be used to produce ICs now controlled under ECCN 3A090 including various high-performance electroplating and chemical vapor deposition processes and processes for fabricating metal contacts. Software and technology for the development, production, or use of 3A090 and 3B090 items is also now controlled for export and reexport to China under ECCNs 3D001 and 3E001, respectively.

The Rule also creates new ECCN 4A090 to control computers, electronic assemblies and components containing ECCN 3A090 ICs.

As with the most controls under the Rule, license applications for transactions affected by the new restrictions will be reviewed under a presumption of denial.

NEW CONTROLS FOR LOWER-LEVEL ICS AND COMPUTERS

Also effective 7 October 2022, the Rule implemented new EAR-based controls on certain lower-level computing ICs and associated computer commodities not currently defined in the CCL. Specifically, new ECCN 3A991.p controls ICs having either a processing performance of 8 TOPS or more, or an aggregate bidirectional transfer rate over all inputs and outputs of 150 GB/s or more to or from integrated circuits other than volatile memories. Although these newly controlled items do not require a license to China, the controls will cause additional technology and software related to those items to trigger the expanded Foreign Direct Product Rules applying to exports and reexports to China, as explained below. This will lead to more foreign produced goods being considered “subject to the EAR” under certain circumstances.

In parallel with the addition of ECCN 3A991.p, new ECCN 4A994.l is also added to include computers, electronic assemblies, and components, not elsewhere specified on the CCL that contain ICs covered by new 3A991.p.

NEW U.S. PERSON RESTRICTIONS

One of the potentially most far-reaching changes in the Rule is a new rule, effective 12 October 2022, restricting “U.S. persons” from certain activities in support of development or production of specified ICs in China, when the transaction does not involve items subject to the EAR. In particular, Section 744.6 of the EAR is amended to inform “U.S. persons” that a BIS license is required for the shipment, transmission, or transfer (in-country) to or within China of the following items not subject to the EAR, or the facilitation of such shipments, transmissions or transfers, or the servicing of such items, *by U.S. persons:*

1. When you know the items will be used in the “development” or “production” of ICs at a semiconductor fabrication “facility” located in China that fabricates ICs meeting any of the following criteria:

a. Logic ICs using a non-planar architecture or with a “production” technology node of 16/14 nanometers or less;

b. NOT-AND (NAND) memory ICs with 128 layers or more; or

c. Dynamic random-access memory (DRAM) ICs using a “production” technology node of 18 nanometer half-pitch or less;

2. Items meeting the parameters of any ECCN in Product Groups B, C, D, or E in Category 3 of the CCL that you know will be used in the “development” or “production” of ICs at any semiconductor fabrication facility located in China, but *you do not know whether such fabrication facility fabricates ICs that meet any of the criteria* specified in 1, above; and

3. Items meeting the parameters of ECCN 3B090 (described above), or software or technology for 3B090 items classified under ECCNs 3D001 and 3E001, respectively, *regardless of the end user or end use.*

“U.S. persons” are defined in the EAR to include U.S. citizens, permanent residents (i.e., green card holders), and certain persons in U.S. asylum status wherever located or employed, companies and other legal entities established in the United States and their foreign branches, and any other person in the United States. This definition would cover, for example, individual U.S. employees of non-U.S. companies. “U.S. person” does not include a separately established foreign subsidiary of a U.S. company, including in China, although U.S. person employees, managers, and directors of the subsidiary would be subject to the restrictions in connection with their activities.

It appears based on preliminary guidance by BIS that, for purposes of the above restriction, a “facility” is a specific plant or other physically separate operation of an end user, and not the end user as a whole, which suggests that if a covered item is being supplied to an end user that produces the referenced ICs but the item is being supplied for use at a facility of the end user that does not produce such ICs, the restrictions under 1 and 2, above, would not apply.

These new U.S. person restrictions are broad and vaguely defined, especially in ¶ 2, above, given that Product Groups B through E of CCL Category 3 cover all IC production machinery and equipment, input materials, related software, and development, production, and use technology, and that parties supplying such items for fabrication facilities in China may be unable to confirm whether ICs described in ¶ 1 might be fabricated at the facility. BIS has indicated that due diligence relating to end users in China will be key in ensuing compliance with the U.S. persons restrictions.

Applications for BIS licenses will be considered with a presumption of denial, except that applications for end users in China headquartered in the United States or in U.S.-aligned countries identified in Country Groups A:5 or A:6 in EAR Part 740 Supplement 1 will be considered on a case-by-case basis.

Section 744.6 of the EAR formerly only restricted activities by U.S. persons directly related to WMDs even when no items subject to the EAR are involved. This provision, in the case of China, now has been considerably expanded to include activities involving specified ICs, IC manufacturing, and supercomputers because of their potential connection to WMD or military end uses as well humanitarian related abuses. The new scope of this

restriction likely will present compliance challenges for any U.S. or non-U.S. company with involvement in the Chinese IC or supercomputer sectors, including as suppliers, that have any U.S. touchpoints, particularly their personnel.

NEW AND EXPANDED FOREIGN DIRECT PRODUCT RULE

The EAR's Foreign Direct Product Rule (FDP Rule) extends U.S. export control jurisdiction to foreign-produced items that are the "direct product" of certain U.S. technology controlled for national security reasons. As discussed in our 2020 client alert, the FDP Rule was expanded to include a specialized FDP Rule to cover foreign-produced products that are the direct product of a broader range of controlled U.S. technology and software, or that are produced from equipment that is the direct product of certain controlled U.S. technology and software, where such products are for shipment directly or indirectly to or for incorporation into items intended for certain identified global affiliates of Huawei, the Chinese telecommunications conglomerate. The 2020 FDP Rule changes were intended primarily to prohibit certain ICs and other advance technology items from being provided to Huawei.

Effective 21 October 2022, the Rule further expands the FDP Rule to include additional specialized FDP Rules covering specified Chinese entities and certain foreign-produced ICs and supercomputer products, as follows.

Expansion of Restrictions on 28 Chinese Entities Currently on the BIS Entity List

Twenty-eight (28) Chinese entities that are already designated on the BIS Entity List will be identified by a footnote as subject to a specialized FDP Rule due to their involvement in developing supercomputers for use in nuclear explosive activities, weapons of mass destruction, or for other military end uses and end users. This restriction will be similar to the expanded, specialized Huawei FDP Rule discussed in our alert above in that foreign items that are the direct product of or that are produced using equipment that is the direct product of certain controlled U.S. technology or software are treated as subject to EAR if incorporated into, or used in the production or development of any part, component, or equipment produced, purchased, or ordered by any of the 28 designated entities, or one of the designated entities is a party to the transaction involving the foreign produced item, such as a purchaser, intermediate consignee, ultimate consignee, or end user. These entities are already on the BIS Entity List, so this latest action will merely expand the scope of EAR prohibitions that are already applied to them.

Advanced Computing FDP Rule

The Rule adds a new Advanced Computing FDP Rule as EAR § 734.9(h) that expands the scope of the FDP Rule to additional foreign-produced items destined for China. Similar to the Huawei FDP Rule discussed in our alert described above, the Advance Computing FDP Rule will have both product scope and destination scope thresholds to apply, as follows:

Product scope—Any (i) foreign-produced advance computer items that are described in ECCNs 3A090 or 4A090 (see previous description) or their related technology described in ECCNs 3E001 or 4E001 or (ii) integrated circuits, computers, electronic assemblies specified elsewhere on the CCL that meet the performance parameters of ECCNs 3A090 or 4A090, that are the "direct product" or produced by equipment that itself is the direct product of certain software or technology subject to the EAR classified in identified ECCNs controlling various semiconductor, computer, and telecommunications related software and technology (specifically, ECCNs 3D001, 3D991, 3E001, 3E002, 3E003, 3E991, 4D001, 4D090, 4D993, 4D994, 4E001, 4E992, 4E993, 5D001, 5D002, 5D991, 5E001, 5E991, or 5E002); and

Destination scope—If there is knowledge that the foreign produced item will go to China, or be incorporated into any part, component, computer, or equipment that is destined to China.

The Rule includes a model certificate that exporters could use for purposes of compliance with the Advance Computing FDP Rule.

Supercomputer FDP Rule

The Rule also adds a Supercomputer FDP Rule that similar to the Advanced Computing FDP Rule in that there will be both product scope and destination scope elements as follows:

Product scope—Any product that is the "direct product" or produced by equipment that itself is the direct product of certain software or technology subject to the EAR classified in identified ECCNs controlling various semiconductor, computer, and telecommunications related software and technology (specifically, ECCNs 3D001, 3D991, 3E001, 3E002, 3E003, 3E991, 4D001, 4D090, 4D993, 4D994, 4E001, 4E992, 4E993, 5D001, 5D002, 5D991, 5E001, 5E991, or 5E002); and

Destination scope—If there is knowledge that the product will be used in design, development, production, operation, installation, maintenance, checking, repair, overhaul, or refurbishing of a supercomputer located in China, or incorporated into or used in the development or production of any part, components, or equipment that will be used in a supercomputer located in or destined for China.

The Rule adds to the EAR a definition of a supercomputer as a computing system having a collective maximum theoretical compute capacity of 100 or more double-precision (64-bit) petaflops or 200 or more single-precision (32-bit) petaflops within a 41,600 ft3 or smaller envelope. *See* EAR § 772.1.

END-USE BASED CONTROLS FOR ITEMS FOR USE IN SEMICONDUCTOR MANUFACTURING, OR A SUPERCOMPUTER IN OR DESTINED TO CHINA

Semiconductor Manufacturing End Use Rule

In addition to the restrictions imposed on U.S. persons with respect to the specified high performance ICs not subject to the EAR identified above, effective 21 October 2022, the Rule also imposes almost mirroring restrictions in the Semiconductor Manufacturing End Use Rule for *all items "subject to the EAR."* Pursuant to 15 C.F.R. § 744.23, effective 7 October 2022, a license is required to export, reexport, or transfer (in-country) without a license, any items meeting any of the below product scope and end use criteria:

1. Any item subject to the EAR when you know the items will be used in the "development" or "production" of ICs at a semiconductor fabrication "facility" located in China that fabricates ICs meeting any of the following criteria:

a. Logic ICs using a non-planar architecture or with a "production" technology node of 16/14 nanometers or less;

b. NOT-AND (NAND) memory ICs with 128 layers or more; or

c. Dynamic random-access memory (DRAM) ICs using a "production" technology node of 18 nanometer half-pitch or less;

2. Items subject to the EAR and classified in ECCNs in Product Groups B, C, D, or E in Category 3 of the CCL that you know will be used in the "development" or "production" of ICs at any semiconductor fabrication facility located in China, but you do not know whether such fabrication facility fabricates ICs that meet any of the criteria specified in 1, above; and

3. Any item subject to the EAR when you know the item will be used for the "development" or "production" in China of any "parts," "components" or "equipment" specified under ECCN 3B001, 3B002, 3B090, 3B611, 3B991, or 3B992.

Supercomputer End Use Rule

Piggybacking on the new Supercomputer End Use FDP Rule, effective 21 October 2022, the Rule imposes new end-use and end-user controls more broadly for supercomputers (defined previously) under 15 C.F.R. § 744.23, with the goal of restricting the provision of specified items to China that would assist in the advancement of supercomputer technology. 15 C.F.R. § 744.23, the same provision as the Semiconductor Manufacturing End Use Rule, will be revised to incorporate this additional end use restriction effective 21 October 2022.

This rule specifically prohibits the export, reexport, or transfer (including in-country transfers) of any item meeting both a product scope and end use scope, defined as follows:

Product Scope—The product scope is identical to that of the Supercomputer End Use FDP Rule in the EAR. In that case, a foreign produced item meets the product scope if it is the direct product of the above specified technology or software subject to the EAR, or is a product of a complete plant or major component of a plant that is itself a direct product of specified U.S.-origin technology or software. Here, however, the scope covers *U.S. origin items, and other items subject to the EAR,* as well, not only foreign-produced items.

End-Use Scope—The end use scope for purposes of this provision is met whenever there is knowledge that the item will be used, directly or indirectly, for any of the following:

- Design, development, production, operation, installation, maintenance (checking), repair, overhaul, or refurbishing of a supercomputer located in or destined to CHINA, or incorporated into any component or equipment that will be used in a supercomputer located in or destined to China;
- Development or production of integrated circuits at a semiconductor fabrication facility located in China that fabricates ICs with specified parameters or if you do not know whether the facility can produce such integrated circuits; or
- Development, production, use, operation, installation, maintenance (checking), repair, overhaul, or refurbishing of any item in China used in the development or production of ICs.

License exceptions may not be used to overcome the requirements imposed by these end-use controls set out in new EAR § 744.23.

BIS recommends certain best practices for compliance with these new requirements. In particular, BIS indicates that if an exporter's customer is a semiconductor manufacturing facility, obtaining an end-use statement is a best practice, along with evaluating any other information necessary to determine whether a license will be required. On the other hand, if the exporter's customer is a reseller, distributor, or other third-party, BIS recommends confirming the actual end use and end user of the products. Of course, this is in addition to other standard diligence that should be performed as part of the transaction.

LICENSING REQUIREMENTS FOR EXPORTS FROM CHINA

The Rule goes further than just restricting certain exports to China by imposing a downstream restriction on exports *from* China of technology for manufacturing advanced ICs (of a type classified under ECCN 3A090 described previously) where the technology (i) has been developed by an entity headquartered in China, (ii) is the direct product of certain software subject to the EAR, (iii) is intended for the production of certain advanced computing ICs and computers or assemblies containing such ICs. The Rule cautions parties outside China receiving advanced IC technology from Chinese entities to conduct diligence to confirm that the technology was properly exported including that BIS authorization was obtained. Any technology falling under this rule that was exported without proper authorization would be subject to the EAR's General Prohibition 10, which prohibits any party (including non-U.S. persons) from dealing with any item that has been exported or otherwise involved in a transaction in violation of the EAR.

MEASURES TO MITIGATE IMPACT TO SUPPLY CHAINS IN SHORT TERM

In the short term, BIS introduced certain measures in hopes of mitigating an immediate supply chain impact from resulting from the new prohibitions. These included:

1. A model certificate for compliance with the new Advanced Computing FDP Rule
    - The form can be found at Supp. No. 3 to Part 734, and was introduced in order to assist exporters with the process of resolving red flags in transactions, specifically directed at whether an item is subject to the EAR under 734.9(h).
    - However, BIS does note that this alone is not comprehensive due diligence sufficient to ensure compliance.
2. Temporary General License
    - BIS also added a temporary general license, available from 21 October 2022. through 7 April 2023, covering that allows exports, reexports, in-country transfers, and exports from abroad destined to or within China by companies not headquartered in Country Groups D:1 or D:5 or E to continue or to engage in integration, assembly (mounting), inspection, testing, quality assurance, and distribution of items covered by ECCN 3A090, 4A090, and associated software and technology in ECCN 3D001, 3E001, 4D090, or 4E001; or any item that is a computer, integrated circuit, electronic assembly or component and associated software and technology, specified elsewhere on Commerce Control List (supplement no. 1 to part 774), which meets or exceeds the performance parameters of ECCN 3A090 or 4A090.
    - The purpose is to avoid disruption where items are destined to customers outside of China, and the license will not authorize any exports, reexports, exports from abroad, or transfers to end users in China.
3. Savings Clause
    - Shipments of items removed from license exception eligibility or eligibility for export, reexport, or transfer without a license that were “on dock for loading, on lighter, laden aboard an exporting carrier, or en route aboard a carrier to a port of export, on 7 October 2022, may continue to the destination under the previous license exception eligibility or without a license so long as they have been exported, reexported or transferred (in-country) before 7 November 2022.”

UNVERIFIED LIST ADDITIONS

In addition to the Rule, BIS also issued a notice published in the Federal Register designating 31 persons and entities located in China on the Unverified List (UVL) based on the U.S. government's inability to complete end-use checks for exports involving these parties, and removed nine parties after successful verification.

The UVL is a "warning flag" list indicating additional EAR-based compliance requirements for parties dealing with UVL-designated persons. Parties in particular are required to obtain a "UVL statement" before proceeding with any export, reexport, or transfer of an item subject to the EAR to a designated party. The 31 entities designated in this action are now subject to this heightened compliance requirement.

In the same notice, BIS also issued a clarification as part of the action to specify that parties may be added to the Entity List for "lack of cooperation by the host government to schedule and facilitate the completion of end use checks." Indeed, BIS made clear that parties on the UVL are particularly at risk for being added to the Entity List because the "lack of cooperation could result in sufficient concern" for the entity to be added to the Entity List to "enhance BIS's ability to prevent violations of the EAR."

Although U.S. parties are not prohibited from engaging with parties on the UVL, a counterparty being added to the UVL is a red flag for purposes of "Know Your Customer" diligence, warranting further caution.

CONCLUSION

As suggested by the above, the changes implemented through the Rule considerably expand the reach and impact of controls under the EAR in connection with the Chinese semiconductor and supercomputer industries, including through novel extraterritorial controls that will likely impact both U.S. and non-U.S. companies. The changes will require a careful examination by companies doing business with the impacted Chinese sectors of their current and proposed activities and will likely require formulation of compliance and due diligence procedures tailored to ensure compliance with the new requirements.

Attorneys in the K&L Gates International Trade Group can assist with any questions regarding the Rule or any other requirements under U.S. export control laws.

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