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Commerce Imposes New Sweeping Export Controls on Chinese Semiconductor, Advanced Computing, and Supercomputer Industries

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On October 7, 2022, the U.S. Department of Commerce's Bureau of Industry and Security (BIS) issued multiple rules imposing a litany of new export control restrictions on the semiconductor, semiconductor manufacturing equipment, advanced computing, and supercomputer industries in the People's Republic of China (PRC), as well as on entities around the globe that do business in China. The [Interim Final Rule](#) (the "Rule"), which spans 139 pages, is BIS's latest attempt to further cement the competitive and strategic advantage that the United States maintains in certain key technologies and software necessary to produce advanced integrated circuits and critical manufacturing equipment and parts. The Rule, which was [previewed](#) by National Security Advisor Jake Sullivan during a speech in September, aligns with his commitment to "revisit the longstanding premise of maintaining 'relative' advantages over competitors in certain key technologies."

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A second [rule](#) issued earlier in the day on October 7, 2022 added 31 parties to the Unverified List (UVL), including YMTC, a notable PRC state-owned flash memory chip maker. This UVL rule also highlighted that BIS would use the UVL as a gateway for future designations on the Entity List if cooperation is not quickly realized between the U.S. government and PRC.

On October 13, 2022, Assistant Secretary for Export Administration Thea Kendler held a public briefing to discuss the Rule. Kendler signaled that BIS is committed to work with industry as the agency works to implement the Rule. She also confirmed that BIS will be releasing FAQs on a rolling basis to address industry questions, which is evidenced by the more than 150 questions BIS received before the briefing. Kendler confirmed that BIS is welcoming public comments on the Rule and the temporary general license until December 12, 2022.

New Unilateral Regional Stability Controls Imposed, Existing ECCNs Revised, and Presumption of Denial License Review Policy

The Rule creates new Export Control Classification Numbers (ECCN) that are controlled for regional stability (RS) reasons for China, meaning that a license is required for the export, reexport, or transfer (in-country) to or within China. These new ECCNs are:

- 3A090 – Certain high-performance ICs.
 - Including certain integrated circuits (ICs) that have or are programmable to have an aggregate bidirectional transfer rate over all inputs and outputs of 600 Gbyte/s or more to or from ICs other than volatile memories.
- 3B090 – Specified semiconductor manufacturing equipment.
 - Including various deposition-type equipment.
- 4A090 – Certain computers, “electronic assemblies,” and “components,” not elsewhere specified, containing ICs in ECCN 3A090.
- 3D001, 3E001, 4D090, 4E001 – Associated software and technology for the items that are now controlled in ECCNs 3A090, 3B090, and 4A090.

Additionally, BIS has added RS license requirements to ECCNs 5A992 and 5D992 when items previously controlled under these ECCNs meet or exceed the performance parameters of ECCN 3A090 or 4A090.

The RS license requirement is also imposed on exports *from* the PRC to any destination worldwide of technology for the design, development, or production of advanced computing chips (i.e., 3E001 for 3A090) that have been developed by an entity headquartered in the PRC or is the “direct product” of certain software subject to the Export Administration Regulations (EAR) and is for the “production” of certain advanced computing integrated circuits and computers or assemblies containing them.

In the Rule, BIS states that

most license applications for items controlled under this RS control will be reviewed under a presumption of denial based on the risk of these items being used contrary to the national security or foreign policy interests of the United States, including the foreign policy interest of promoting the observance of human rights throughout the world. The exception to the presumption of denial is for license applications for semiconductor manufacturing items destined to end users located

in China that are headquartered in the United States or in a country in Country Group A:5 or A:6; license applications involving such end users will be considered on a case-by-case basis, taking into account factors including technology level, customers and compliance plans.

Additional AT control revisions

The Rule also revises existing ECCNs 3A991 and 4A994 to add the following new provisions:

- 3A991.p – Integrated circuits, not elsewhere specified, having any of the following: (1) a processing performance of 8 Tops or more; or (2) an aggregate bidirectional transfer rate over all inputs and outputs of 150 Gbyte/s or more to or from integrated circuits other than volatile memories.
- 4A994.l – Computers, “electronic assemblies,” and “components,” not elsewhere specified, containing integrated circuits, any of which exceeds the limit of ECCN 3A991.p.

These new items controlled for AT purposes require a license when destined to military end uses or military end users as defined in Section 744.21 as well as to all destinations in Russia, Belarus, and other terrorist-supporting countries enumerated in Part 746.

New End-Use & End-User Controls

BIS – as it has done by revising Part 744 *multiple* times over the past few years – imposed additional sweeping license requirements by creating a new Section 744.23 provision restricting the export, reexport, or transfer (in-country) of items for semiconductor and supercomputer items when a party has “knowledge” that the item is destined for a semiconductor- or supercomputer-related end use. These new end-use restrictions take effect on different days and vary in breadth.

Semiconductor end-use controls – effective October 7, 2022

- 1) Any item subject to the EAR (including EAR99 items) when used in the “development” or “production” of integrated circuits at a semiconductor fabrication “facility” located in the PRC that fabricates integrated circuits meeting any of the following criteria:
 - Logic integrated circuits using a nonplanar transistor architecture or with a “production” technology node of 16/14 nanometers or less.
 - NOT AND (NAND) memory integrated circuits with 128 layers or more.
 - Dynamic random-access memory (DRAM) integrated circuits using a “production” technology node of 18 nanometer half-pitch or less.
- 2) Any item subject to the EAR and classified in an ECCN in Product Groups B, C, D, or E in Category 3 of the Commerce Control List (CCL) when used in the “development” or “production” of integrated circuits at any semiconductor fabrication “facility” located in the PRC, but you do not know whether such semiconductor fabrication “facility” fabricates integrated circuits that meet any of the above-mentioned criteria of No. 1.
- 3) Any item subject to the EAR (including EAR99 items) when used in the “development” or “production” in the PRC of any “parts,” “components” or “equipment” specified under ECCN 3B001, 3B002, 3B090, 3B611, 3B991, or 3B992. (Note that this control is not specific to semiconductor fabrication facilities.)

Supercomputer end-use controls – effective October 21, 2022

In addition to the semiconductor end-use restrictions, on October 21, BIS will begin imposing a license requirement on ICs specified in ECCN 3A001, 3A991, 4A002, 4A004, 4A994, 5A002, or 5A992 and computers, electronic assemblies, and components specified in ECCN 4A003, 4A004, 4A994, 5A002, 5A004, or 5A992 when exported, reexported, or transferred (in-country) to or within the PRC if either of the following criteria apply:

- 1) Used in the “development,” “production,” “use,” operation, installation (including on-site installation), maintenance (checking), repair, overhaul, or refurbishing of a “supercomputer” located in or destined to the PRC.
- 2) Incorporation into, or the “development” or “production” of any “component” or “equipment” that will be used in a “supercomputer” located in or destined to the PRC.

BIS has created a new definition of “supercomputer” in Part 772 to mean:

Supercomputer. 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.

Note 1 to “Supercomputer”: The 41,600 ft³ envelope corresponds, for example, to a 4x4x6.5ft rack size and therefore 6,400 ft² of floor space. The envelope may include empty floor space between racks as well as adjacent floors for multi-floor systems.

Note 2 to “Supercomputer”: Typically, a “supercomputer” is a high-performance multirack system having thousands of closely coupled compute cores connected in parallel with networking technology and having a high peak power capacity requiring cooling elements. They are used for computationally intensive tasks including scientific and engineering work. Supercomputers may include shared memory, distributed memory, or a combination of both.

U.S. concerns about supercomputer competition are not new. Of the 10 most powerful supercomputers in the world today, five are in the United States. Two are in China, and one of those was reportedly built with Chinese processors. In recent years, cloud-based supercomputing has emerged as a viable option for research and development organizations, raising questions about the future importance of nation-based supercomputers.

Further Expansion of Extraterritorial Reach of the Foreign Direct Product Rule

BIS has also expanded its Foreign Direct Product Rule (FDPR) by creating two new rules for advanced computing and supercomputers, as well as revising the existing Entity List FDPR.

Revised Entity List FDPR

The Entity List FDPR, set forth at Section 734.9(e), identifies two footnotes on the Entity List that indicate the application of this rule. These latest changes do not alter the scope of the footnote 1 entities (aka, the Huawei Rule). Effective October 21, 2022, foreign-produced items will be subject to the EAR and require a license when destined to or for use by an entity with a footnote 4 if the item is (1) the direct product of software or technology subject to certain ECCNs in Categories 3, 4, and 5 of the CCL; or (2) the foreign-produced item will be incorporated into or will be used in the production or development of any part, component, or equipment produced, purchased, or ordered by a footnote 4 entity.

As was the case with footnote 1 entities, if footnote 4 entities are a party to the transaction, including the purchaser, intermediate consignee, ultimate consignee, or end user, this FDPR will apply. With this action, BIS has also designated 28 parties – that were previously on the Entity List – with a footnote 4. According to BIS, these 28 entities in the PRC are of concern for national security and foreign policy reasons due to their perceived involvement with the Chinese military, nuclear explosive activities, and China's WMD programs.

New advanced computing and supercomputing FDPRs

BIS also adds a new advanced computing FDPR, set forth at Section 734.9(h), and supercomputing FDPR, set forth at Section 734.9(i). Like the revised Entity List FDPR, these new FDPRs are effective October 21, 2022.

The advanced computing FDPR under Section 734.9(h) now applies to a foreign-produced item if it is the direct product or product of a complete plant or major component of a plant that is a direct product of EAR-controlled software or technology in ECCN, 3D001, 3D991, 3E001, 3E002, 3E003, 3E991, 4D001, 4D090, 4D993, 4D994, 4E001, 4E992, 4E993, 5D001, 5D002, 5D991, 5E001, 5E991, or 5E002 of the CCL and the foreign-produced item is either:

- Specified in ECCN 3A090, 3E001 (for 3A090), 4A090, or 4E001 (for 4A090) of the CCL.
- An integrated circuit, computer, "electronic assembly," or "component" specified elsewhere on the CCL and meets the performance parameters of ECCN 3A090 or 4A090.

For the advanced computing FDPR to apply, there has to be "knowledge" that a foreign-produced item is (1) destined to the PRC; (2) will be incorporated into any "part," "component," "computer," or "equipment" not designated EAR99 that is destined to the PRC; or (3) technology developed by an entity headquartered in the PRC for the "production" of a mask or an integrated circuit wafer or die.

The supercomputing FDPR under Section 734.9(i) is similar in construction to the advanced computing FDPR, with a notable difference. This rule extends to *any* foreign-produced items that are the direct product of EAR-controlled technology or software from the same ECCNs identified in Section 734.9(h), if there is knowledge that the item will be used (1) in the design, "development," "production," operation, installation (including on-site installation), maintenance (checking), repair, overhaul, or refurbishing of a "supercomputer" located in or destined to the PRC; or (2) incorporated into, or used in the "development," or "production," of any "part," "component," or "equipment" that will be used in a "supercomputer" located in or destined to the PRC.

New Restrictions on U.S. Persons

One of the biggest developments of the Rule is the amendment to Section 744.6 to provide a "public notice" that U.S. persons supporting activities related to the "development" or "production" of ICs could involve "support" to WMD and missile end uses and will require a license. Specifically, BIS is informing "U.S. persons" that a license is now required if U.S. persons "support" the following activities:

- Shipping, transmitting, or transferring, or facilitating such movement, to or within China or servicing any item *not subject to the EAR* with knowledge that the item will be used in the development or production of ICs at a fabrication facility in China that produces ICs meeting any of the following criteria:
 - Logic integrated circuits using a nonplanar architecture or with a "production" technology node of 16/14 nanometers or less.
 - NOT-AND (NAND) memory integrated circuits with 128 layers or more.

- Dynamic random-access memory (DRAM) integrated circuits using a “production” technology node of 18 nanometer half-pitch or less.
- Shipping, transmitting, or transferring, or facilitating such movement, to or within China or servicing any item not subject to the EAR and meeting the parameters of any ECCN in Product Groups B, C, D, or E in Category 3 of the CCL with knowledge that the item will be used in the development or production of ICs at any fabrication facility in China if the U.S. person does not know whether the fabrication facility produces ICs meeting the criteria above.
- Shipping, transmitting, or transferring, or facilitating such movement, to or within China or servicing any item not subject to the EAR and meeting the parameters of ECCN 3B090, 3D001 (for 3B090), or 3E001 (for 3B090) regardless of the end use or end user.

There are no license exceptions available when considering the above prohibitions. License applications for U.S. person support will be reviewed under a policy of denial “except for end users in the PRC headquartered in the United States or a country in Country Group A:5 or A:6, which will be considered on a case-by-case basis taking into account factors including technology level, customers, and compliance plans.”

Modifications to the Unverified List and Entity List

Finally, in a separate [rule](#) also published on October 7, 2022, BIS amended the EAR by adding 31 entities to, and removing nine entities from, the UVL. BIS stated that the foreign persons were added to the UVL “because BIS or federal officials acting on BIS’s behalf were unable to verify their bona fides (i.e., legitimacy and reliability relating to the end use and end user of items subject to the EAR) through the completion of an end-use check. Sometimes these checks, such as a pre-license check (PLC) or a post-shipment verification (PSV), cannot be completed satisfactorily for reasons outside the U.S. Government’s control.”

The significance of a UVL designation is that in accordance with Section 740.2(a)(17), the use of license exceptions for exports, reexports, and transfers (in-country) involving a party or parties to the transaction that are listed on the UVL is suspended. BIS in a new policy is specifying that when there are situations in which there is a sustained lack of cooperation by a host government authority that prevents an end-use check from being conducted, that conduct may constitute a basis for adding a party to the Entity List.

Key Dates; Immediate and Future Considerations for Impacted Parties

Certain portions of the Rule take effect immediately upon publication in the *Federal Register* (i.e., October 7, 2022), and other sections have staggered effective dates later in October. Parties may find some refuge in the Savings Clause if items were on dock for loading, on lighter, laden aboard an exporting carrier, or en route aboard a carrier to a port of export on October 7, 2022. Those items 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 November 7, 2022.

Additionally, BIS has also created a temporary general license (TGL) starting October 21, 2022, through April 7, 2023, authorizing 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, thus allowing companies to continue or to engage in integration, assembly (mounting), inspection, testing, quality assurance, and distribution of certain items now caught by these

new restrictions. However, the TGL does not authorize the export, reexport, in-country transfer, or export from abroad to “end-users” or “ultimate consignees” in China. Companies are encouraged to carefully review eligibility based on their specific supply chain considerations before relying on the TGL going forward.

These new export controls will have negative economic impacts on U.S. companies and companies in allied, advanced countries, and may further drive the PRC to develop its own indigenous capabilities that are devoid of U.S. inputs. Many of these new rules impose controls on existing technologies, software, and equipment that China has had access to for many years. The imposition of *immediate* controls without a sufficient wind-down period will temporarily cripple U.S. parties that operate in this space. Various press outlets have already reported on different U.S.-equipment suppliers standing down personnel co-located at Chinese fabrication facilities while they assess the Rule’s impacts. We assume BIS has taken these negative impacts into consideration, but we encourage impacted parties to submit public comments on these topics.

Supply chain diligence is now more important than ever, and we expect that industry will struggle to quickly implement these new export control requirements. BIS has included model certification templates that are intended to support due diligence and fact gathering while at the same time confirming the view that “BIS does not view use of this certificate alone to be a comprehensive due diligence process.” Impacted companies are encouraged to immediately review their supply chains to identify any impacts from the Rule. As the Rule significantly limits the use of license exceptions for exports, reexports, and transfers (in-country), companies may now require a license to service existing equipment or products or provide other services.

If you have any questions, please contact our International Trade & Regulatory Group.

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