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Commerce Imposes Additional Novel and Complex Export Controls on Chips and Semiconductor Equipment

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TABLE OF CONTENTS

[Introduction](#)

[Semiconductor Manufacturing Equipment Rule](#)

[Advanced Computing and Supercomputer Rule](#)

[Broader Section 744.6 U.S. Person Support Restrictions](#)

[Other Notable Developments](#)

[Conclusion](#)

Introduction

On October 17, 2023, the U.S. Department of Commerce's Bureau of Industry and Security (BIS) issued two interim final rules imposing new and revising existing export control restrictions on the semiconductor, semiconductor manufacturing equipment, advanced computing, and supercomputer industries in the People's Republic of China (PRC), additional countries of concern, and entities around the globe that do business in China. The October 17 Rules revise rules published by BIS on October 7, 2022 that significantly impacted the global semiconductor industry. See our previously released advisory [here](#).

In a [press release](#) that accompanied the publication of the October 17 Rules, Secretary of Commerce Gina Raimondo signaled that BIS "will keep working to protect our national security by restricting access to critical technologies, vigilantly enforcing our rules, while minimizing any unintended impact on trade flows." In that same press release, Under Secretary of Commerce for Industry and Security Alan Estevez said, "Export controls are a powerful national security tool, and the updates released today build on our ongoing assessment of the U.S. national security and foreign policy concerns that the PRC's military-civil fusion and military modernization present."

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Collectively, these rules, [Export Controls on Semiconductor Manufacturing Items](#) (SME Rule) and [Implementation of Additional Export Controls: Certain Advanced Computing Items; Supercomputer and Semiconductor End Use; Updates and Corrections](#) (AC/S Rule), seek to build higher fences around key technologies and products to protect U.S. national security interests, while at the same time relaxing and unwinding certain requirements imposed last October that BIS has now conceded were overly broad and burdensome for U.S. and allied-country companies. BIS, with dozens of pages of introductory commentary, responded to the public comments received on the October 7 Rules.

These new rules take effect 30 days from publication in the *Federal Register* – November 17, 2023. Additionally, BIS has initiated a 60-day public comment period seeking input on a variety of important topics.

Semiconductor Manufacturing Equipment Rule

The SME Rule implements major changes to the October 7 Rules that enacted controls on advanced computing and supercomputer end uses. These latest changes make multiple revisions of the Export Administration Regulations (EAR) across Parts 734, 736, 740, 742, 744, 772, and 774.

Continued expansion of EAR jurisdiction

The SME Rule continues BIS's expansion of its extraterritorial reach by revising the EAR de minimis rule set forth at EAR Section 734.4(a)(3) to add a 0% de minimis threshold for certain types of lithography equipment described at ECCN 3B001.f.1.b.2.b., "when the equipment is destined for use in the 'development' or 'production' of 'advanced-node integrated circuits' and the 'advanced-node integrated circuits' meet the parameter specified in paragraph (1) of that definition in § 772.1 of the EAR, unless the country from which the foreign-made item was first exported has a commodity specified on an export control list."

BIS also revised Section 772.1 to include "advanced-node integrated circuit" as a new defined term:

- (1) Logic integrated circuits using a non-planar transistor architecture or with a "production" 'technology node' of 16/14 nanometers or less;
- (2) NOT AND (NAND) memory integrated circuits with 128 layers or more; or
- (3) Dynamic random-access memory (DRAM) integrated circuits using a "production" 'technology node' of 18 nanometer half-pitch or less.

Therefore, covered lithography equipment incorporating any amount of controlled EAR content will be subject to the EAR if destined to end users that meet the requirements of paragraph (1) of the definition.

We note that the new advanced-node integrated circuit definition tracks the criteria that BIS previously established in the October 7 Rule in Sections 744.6 and 744.23, but instead relocates the three qualifying advanced integrated circuit (IC) criteria to the definitions section of the EAR. BIS has also included additional commentary in the form of "technical notes" that are intended to assist companies in calculating the node range or half-pitch in the case of DRAM.

The de minimis rule changes also contemplate a multilateral control being imposed on covered equipment, with Japan being identified the only country thus far to capture ArF-wet lithography equipment on its control list effective July 23, 2023.

Changes to multiple ECCNs

The SME rule adds additional semiconductor equipment to ECCN 3B001 and reassigns the equipment previously described under ECCN 3B090, eliminating that ECCN from the Commerce Control List (CCL) altogether based on BIS's realization that the "use of existing ECCNs would facilitate global compliance and enforcement." Conforming changes are also made to 3B002, 3D001, and 3E001. The semiconductor manufacturing equipment described under 3B001 will now include a variety of atomic layer deposition equipment, other types of specialized deposition equipment, direct step on wafer processing equipment, additional lithography equipment containing extreme ultraviolet capabilities, wafer cleaning and removal equipment, and certain equipment for dry surface oxide pre-clean or dry surface decontamination, among other items.

Changes to destination controls

The SME rule also adds national security (NS) and regional stability (RS) controls to certain manufacturing equipment now found in ECCNs 3B001 and 3B002, as well as to software and technology associated with such equipment. Additionally, BIS has expanded the country scope of the rule from PRC and Macau to now reflect "Macau and destinations specified in Country Group D:5" or all countries where the United States maintains an arms embargo. These NS and RS changes and expanded country scope are implemented through amendments to Sections 742.4 and 742.6.

Revision to Sections 744.6 and 744.23 prohibited end-use restrictions

The SME Rule also makes significant changes to the U.S. person "support" restrictions at Section 744.6 and supercomputer, advanced-node integrated circuit, and semiconductor manufacturing equipment restrictions at Section 744.23. First, BIS has restructured and streamlined Section 744.6(c). Second, BIS has modified both sections to clarify the types of facilities where a prohibited end use must occur. BIS has removed reference to qualifying "fabrication" facility to instead apply these restrictions to "where production" of advanced-node integrated circuits occurs. This revision was incorporated to "better capture facilities where important late-stage product engineering or early-stage manufacturing steps (among others) may occur, which aligns with BIS's intended focus." BIS indicated that certain facilities where only development activities occur would fall outside the scope of the rules.

Another notable change to Section 744.23 is the revision to Section 744.23(a)(4) (previously Sections 744.23(a)(1)(v) and (a)(2)(v)) that now significantly narrows the end-use scope to items subject to the EAR and specified on the CCL. Before this change, all items subject to the EAR, including EAR99 items (e.g., gaskets, O-rings, and fasteners), were subject to a license requirement if intended for use in development or production of certain manufacturing items in the PRC and Macau. BIS addressed this correction in its response to several questions and conceded that the existing provision is "overbroad" and therefore narrowed the product scope to only items on the CCL. BIS also further narrowed the scope of Section 744.23(a)(4) to only apply to "front-end integrated circuit 'production' equipment," creating a carve-out for equipment "used exclusively in back-end steps or other applications" that does "not alter the integrated circuit technology level." BIS has asked the public for comments on this revision.

New temporary general license

The SME Rule also adds a new temporary general license (TGL) to provide SME producers in the United States and Country Groups A:5 and A:6 countries "additional time to identify alternative sources of supply outside of arms-embargoed countries, or to acquire individually validated licenses." The TGL, which is valid from November 17, 2023 through December 31, 2025, overcomes the license requirements described in Section 744.23(a)(4) when:

(1) the items exported, reexported, or transferred (in-country) are subject to the EAR, specified on the CCL, and controlled only for AT reasons, and (2) the items are exported, reexported, or transferred (in-country) at the direction of a company that is headquartered in the United States or a destination specified in Country Groups A:5 or A:6, and not majority-owned by a company headquartered in either Macau or a destination specified in Country Group D:5.

Advanced Computing and Supercomputer Rule

The AC/S Rule implements major changes to the October 7 Rules that imposed controls on advanced computing and supercomputer end uses. These latest changes make multiple revisions of the EAR across Parts 732, 734, 736, 740, 742, 744, 746, 748, 758, 770, 772, and 774.

Changes to multiple ECCNs

The AC/S rule revises ECCN 3A090 – the ECCN that was created in the October 7 Rule – to expand the technical thresholds that apply to the chips, specifically by removing the existing transfer rate threshold and adding the following criteria in a new paragraph (a): “(1) a ‘total processing performance’ of 4800 or more, or (2) a ‘total processing performance’ of 1600 or more and a ‘performance density’ of 5.92 or more.” BIS notes that “this action is necessary to ensure that ICs below the October 7 ECCN 3A090 parameters that were still useful for training advanced AI with military applications would be controlled.”

BIS stated that the new “performance density” parameter is intended to prevent the workaround of purchasing a larger number of smaller AI chips that if combined would be equally as powerful as restricted chips. BIS also revised five technical notes that support ECCN 3A090 and replaced the existing TOPS calculations with a total processing performance (TPP) calculation, or “ $2 \times \text{‘MacTOPS’} \times \text{‘bit length of the operation’}$, aggregated over all processing units on the integrated circuit.”

The Rule also creates a new paragraph (b) to ECCN 3A090 to control ICs that are not as advanced as those subject to ECCN 3A090.a requirements and meet the following technology thresholds: “(1) a ‘total processing performance’ of 2400 or more and less than 4800 and a ‘performance density’ of 1.6 or more and less than 5.92, or (2) a ‘total processing performance’ of 1600 or more and a ‘performance density’ of 3.2 or more and less than 5.92.”

The AC/S Rule also revises ECCNs 3A001, 4A003, 4A004, 4A005, 5A002, 5A004, 5A992, 5D002, and 5D992 to address overlapping controls with ECCNs 3A090, 4A090, 3A991.p and 4A994.l by adding .z paragraphs to each of the nine ECCNs. The creation of this new “.z” paragraph is “intended to make it easier for exporters, reexporters, and transferors to identify these items subject to controls added in the October 7 IFR and to more easily distinguish these items from other items controlled under these same nine ECCNs.”

Changes to destination controls; expansion to D:5 from “PRC & Macau”

The AC/S Rule makes changes to the list-based regional stability (RS) controls identified at Section 742.6 that were originally imposed on certain advanced computing items in the October 7 Rule, specifically by broadening the destination scope to 24 countries where BIS has concerns of diversion in Country Groups D:1, D:4, and D:5 (that are not destinations also identified in Country Groups A:5 or A:6). The October 7 Rule limited the RS controls to only the PRC and Macau. BIS notes that these additional countries are being identified because of concerns related to national security or missile technology proliferation.

The AC/S Rule “also revises ECCNs 3A001, 3D001, 3E001, 4A003, 4A004, 4A005, 5A002, 5A004, and 5D002 to add [an] RS license requirement and a reference to destinations specified” in the applicable Country Group D countries. License applications for items “to or within destinations not specified in Country Group D:5 (except Macau) will be reviewed on a presumption of approval basis, unless the export, reexport, or transfer (in-country) is to an entity headquartered in or whose ultimate parent company is headquartered in, either Macau or a destination specified in Country Group D:5, in which case license applications will be reviewed under a presumption of denial.”

Creation of new license exception NAC and advance notification requirement

The AC/S Rule creates a new Notified Advanced Computing (NAC) license exception for consumer-grade ICs with AI capabilities, to be added in Section 740.8,

for ICs under ECCN 3A090.b (i.e., ICs designed or marketed for use in datacenters) and non-datacenter ICs under 3A090.a (i.e., ICs not designed or marketed for use in datacenters and that do have a ‘total processing performance’ of 4800 or more). NAC is available for exports, reexports, and transfers in or within Country Groups D:1, D:4, or D:5 with different requirements applicable to Macau and destinations specified in Country Group D:5.

Exports and reexports to Country Group D:5 (and Macau) will require advanced notification to BIS, submitted through the Simplified Network Application Process Redesign (SNAP-R) portal, and require a 25-day waiting period to allow for BIS input on the contemplated transaction.

New Section 744.23 end-use controls

This AC/S Rule adds a new end-use restriction under Section 744.23(a)(3)(i) that will apply to any item subject to the EAR and specified in ECCN 3A001.z, 3A090, 4A003.z, 4A004.z, 4A005.z, 4A090, 5A002.z, 5A004.z, 5A992.z, 5D002.z, or 5D992.z, when the exporter, reexporter, or transferor has “knowledge” at the time of the export, reexport, or transfer (in-country) that the item is destined for any entity that is “headquartered in, or whose ultimate parent company is headquartered in, either Macau or a destination specified in Country Group D:5.”

The Rule adds a second end-use control for the items identified under Section 744.23(a)(3)(ii) for:

any ‘technology’ subject to the EAR and specified in ECCN 3E001 (for 3A090) ‘technology’ when the technology meets all of the following: the technology is developed by an entity headquartered in or whose ultimate parent company is headquartered in, either Macau or a destination specified in Country Group D:5; the technology is subject to the EAR pursuant to the FDP rule in §§ 734.9(h)(1)(i)(B)(I) and (h)(2)(ii) of the EAR; and the technology is for the reexport or transfer (in-country) from or within Macau or a destination specified in Country Group D:5 to any destination worldwide.

New red flags and diligence materials

The AC/S Rule also adds five new “red flags” that are intended to provide compliance guidance to assist exporters, reexporters, and transferors with their compliance programs. Their presence is said to warrant additional due diligence.

New temporary general license

The AC/S Rule creates a new TGL authorizing entities “to continue or engage in integration, assembly (mounting), inspection, testing, quality assurance, and distribution of” certain specified items “provided the items are 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." Like the SME TGL, this AC/S TGL is valid through December 31, 2025.

Request for comments

BIS has issued a request for public comments for the following topics:

- 1) Addressing 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, such as models exceeding certain thresholds of parameter count, training compute, and/or training data.
- 2) Developing technical solutions to exempt items otherwise classified under ECCNs 3A090 and 4A090.
- 3) Identifying ways to assist semiconductor fabrication facility compliance in recognizing "direct products."
- 4) Control parameters under 3A090, in particular Note 2 to 3A090.
- 5) Definition of headquartered companies.
- 6) The technical parameters included in the definition of "supercomputer" and how those relate to the end-use control under § 744.23(a)(1).

Interested parties are encouraged to file their comments by December 18, 2023.

Broader Section 744.6 U.S. Person Support Restrictions

Changes to both the AC/S and SME Rules expound upon the scope of prohibited U.S. person activities by codifying examples BIS previously identified in Frequently Asked Questions issued after the publication of the October 7 Rule and by addressing comments about the meaning of "facilitation." BIS also amended Section 744.6 to carve out certain administrative activities and indirect services from the scope of the prohibitions.

The prohibitions apply when U.S. persons have knowledge that an item not subject to the EAR will be used in the "development" or "production" of ICs at a facility of "an entity headquartered in, or whose ultimate parent company is headquartered in, either Macau or a destination specified in Country Group D:5" and when the production of advanced-node ICs occurs (or in certain cases when the U.S. person does not know whether such production occurs). Additionally, U.S. persons are prohibited from supporting transfers of equipment not subject to the EAR but meeting the parameters of certain ECCNs. Specifically, the Rule imposes a license requirement on U.S. persons that (1) authorize or facilitate the shipment, transmittal, or transfer (in-country) of items not subject to the EAR to facilities where the production of advanced-node ICs occurs; (2) conduct or facilitate the delivery, by shipment, transmittal, or transfer in-country, of items not subject to the EAR to such facilities; and (3) service, including maintaining, repairing, overhauling, or refurbishing certain items not subject to the EAR.

BIS also expanded paragraph (d) of Section 744.6 to clarify that these restrictions "do not extend to 'U.S. persons' conducting administrative or clerical activities (e.g., arranging for shipment or preparing financial documents) or otherwise implementing a decision to approve a restricted shipment, transmittal, or in-country transfer, or to activities of 'U.S. persons' that are not directly related to the provision or servicing of specific items to the 'development' or 'production' of 'advanced-node integrated circuits.'" It also excludes natural U.S. persons "employed or working on behalf of a company headquartered in the United States or a destination specified in Country Group A:5 or A:6 and

not majority-owned by an entity that is headquartered in Macau or a destination specified in Country Group D:5” from the scope of these prohibitions.

In responses to comments on the SME Rule, BIS also explained that it would not consider certain activities to be facilitation “provided that they are performed by administrative or clerical staff and are undertaken only to carry out a decision maker’s decision to export, reexport, or transfer (in-country) items that may require a license under the EAR.” The activities identified by BIS include “provision of back-office services that help the business to function, such as IT services, financial services, or human resources support; order intake and processing; invoicing and cash or receivables collection activities; legal advice and counseling on the requirements of the EAR or other compliance obligations; and referring any matters or opportunities to non-U.S. persons.”

Other Notable Developments

Designation of new FN4 entities

In parallel with the publication of the SME Rule and AC/S Rule, BIS [added](#) 13 entities to the Entity List “involved in the development of advanced computing integrated circuits,” specifically graphics processing units. These entities are also designated with a footnote 4, rendering all of them subject to the Entity List FDP in Section 734.9(e)(2).

VEU Part 744 expansion

Before the release of the October 17 Rules, BIS issued an amendment to the Validated End-User (VEU) List by amending Section 748.15 of the EAR to allow for VEU to be excluded from the restrictions of Sections 744.6(c)(2)(i) through (iii) and 744.23(a)(1)(iii) and (a)(2)(iii). Before this amendment, authorization VEU was unable to be used to overcome any end-use or end-user restriction identified in Part 744 of the EAR. Going forward, BIS appears to be willing to entertain authorization VEU requests for certain activities otherwise prohibited by Sections 744.6 and 744.23.

Notice of public briefing

On October 25, BIS released a [notice](#) that a public briefing on these new novel and complex rules will be held on November 6, 2023. Interested parties are encouraged to visit the BIS website for additional information on this briefing.

Conclusion

These new amendments to the EAR mark the latest efforts of the U.S. government to curtail China’s access to technologies needed for the development and production of advanced semiconductors. While unilateral, BIS has continued to signal that it seeks long-term multilateral solutions to combat these national security concerns and will continue to work with key U.S. allies on implementing similar controls. Due to the extreme complexity of these rules, interested parties are encouraged to review the rules in detail and update internal compliance programs and any previously conducted technology and risk assessments to identify any changes to their products or supply chain at large.

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