Comments of the
Semiconductor Industry Association

On

The Interim Final Rule Entitled
"Commerce Control List Additions and Revisions; Implementation of Controls on Advanced Technologies Consistent With Controls Implemented by International Partners"

89 Fed. Reg. 72926 (September 6, 2024)
RIN 0694-AJ60
Docket No. 240813-0217

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The Semiconductor Industry Association (SIA) submits these comments in response to the request from the Bureau of Industry and Security (BIS) within the Department of Commerce (Commerce) in the interim final rule (IFR), entitled "Commerce Control List Additions and Revisions; Implementation of Controls on Advanced Technologies Consistent with Controls Implemented by International Partners," 89 Fed. Reg. 72926.

Part I contains introductory and background comments about SIA and semiconductors. Part II contains comments and questions regarding specific provisions in the IFR for BIS's consideration.

Part I – Introduction and Background

SIA has been the voice of the U.S. semiconductor industry for almost 50 years. SIA member companies represent more than 99% of the U.S. semiconductor industry by revenue and nearly two-thirds of non-U.S. firms, and are engaged in the research, design, and manufacture of semiconductors. The U.S. is the global leader in the semiconductor industry today. Continued U.S. leadership in semiconductor technology will drive economic strength, national security, and global competitiveness. More information about SIA and the semiconductor industry is available at https://www.semiconductors.org/.

Semiconductors are complex products critical to the functioning of everyday consumer electronics, communications, and computing devices in the automotive, industrial, financial, medical, retail, and many other sectors of the economy. They are also critical components for future technologies, such as artificial intelligence, quantum computing, and 5G/6G telecommunications.

As stated in both the House and Senate versions of the 2021 National Defense Authorization Act: "*The leadership of the United States in semiconductor technology and*

innovation is critical to the economic growth and national security of the United States."[1] Given how important the economic vitality and competitiveness of the U.S. semiconductor industry is to national security, as a general matter, it is critical to ensure that U.S. export controls are narrowly tailored and designed to achieve specific national security objectives.

As we have underscored in previous comments,[2] U.S. export controls should be aligned and implemented in a multilateral manner such that they do not undermine innovation and the technology base in the United States. We therefore appreciate BIS's acknowledgement in the IFR that export controls are more effective at safeguarding U.S. national security and advancing foreign policy objectives when implemented multilaterally. We also commend BIS' efforts to harmonize the controls in this IFR with those of like-minded partners and allies, and to establish a new, flexible regulatory framework in License Exception Implemented Export Controls (IEC).

SIA has long been a partner of the U.S. government in providing support and feedback regarding export control policy, particularly with respect to semiconductors, and we appreciate the opportunity to provide comments, questions, and requests with respect to the IFR. Our comments below are focused on the provisions in the IFR that are specific to the controls on Gate all-around Field-Effect Transistor (GAAFET) technology, as well as controls related to extreme ultraviolet (EUV) reticles.

Part II – Comments

SIA identified a number of provisions and language pertaining to the controls on GAAFET technology that lack clarity. SIA requests that BIS clarify the following points, either through publishing frequently asked question (FAQ) guidance or through revisions in a final rule, as appropriate.

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[1] H.R. 6395 § 1824(b) and S. 4049 § 1098(b).

[2] Comments of the Semiconductor Industry Association (SIA) on "Implementation of Additional Export Controls: Certain Advanced Computing Items; Supercomputer and Semiconductor End Use; Updates and Corrections; and Export Controls on Semiconductor Manufacturing Items; Corrections and Clarifications," (89 Fed. Reg. 23876 (April 4, 2024)), April 29, 2024, https://www.regulations.gov/comment/BIS-2023-0016-0036; Comments of the Semiconductor Industry Association (SIA) on "Implementation of Additional Export Controls: Certain Advanced Computing Items Supercomputer and Semiconductor End Use; Updates and Corrections," (88 Fed. Reg. 73458 (Oct. 25, 2023)), Jan. 17, 2024, https://www.regulations.gov/comment/BIS-2022-0025-0074; Comments of the Semiconductor Industry Association on "Export Controls on Semiconductor Manufacturing Items," (88 Fed. Reg. 73424 (Oct. 25, 2023)), Jan. 17, 2024, https://www.regulations.gov/comment/BIS-2023-0016-0015.

Comment II.A: BIS should clarify several reporting requirements in the Interim Final Rule.

SIA member companies – which include semiconductor companies headquartered both in and outside the United States – take their compliance obligations very seriously, which include, among other things, to provide accurate reporting to BIS where required. As such, SIA raises the following questions with respect to reporting requirements in the IFR, and requests BIS to provide clarifications either publishing an FAQ or through revisions in a final rule to ensure that such requirements are clear and manageable.

- EAR § 743.7(a)(2) requires that companies using paragraph (f)(2) of the GAAFET General License (GL) at General Order No. 6 under Supp. No. 1 to EAR Part 736 for deemed exports and deemed reexports of 3E905 technology to current employees must report to BIS the voluntary or involuntary termination of foreign person employees whose most recent country of citizenship is in Country Groups D:1 or D:5, within 30 days of termination. Is a termination report required for a pre-existing employee that obtains U.S. permanent residency or citizenship, and therefore no longer requires BIS authorization to receive 3E905 technology?

- For exports, reexports, in-country transfers, deemed exports, and deemed reexports authorized under paragraphs (f)(1) and/or (f)(2) of the GAAFET GL at General Order No. 6 under Supp. No. 1 to EAR Part 736, should the reports required under paragraph (f)(4) – i.e., the initial report(s) within 60 days after rule publication and subsequent annual reports – be consolidated into one report covering both paragraphs (f)(1) and (f)(2), or should these reports be submitted separately?

- The information required by EAR § 743.7(c) appears to relate more to paragraph (f)(1) of the GAAFET GLs at General Order No. 6 under Supp. No. 1 to EAR Part 736, rather than paragraph (f)(2). By contrast, the information required under EAR §743.8(c) for annual reports relating to deemed exports and deemed reexports of quantum software or technology under paragraph (f)(3) seems more relevant to paragraph (f)(2). Structurally, as written, the information required to be reported under EAR § 743.7(c) and EAR § 743.8(c) is not parallel, even though paragraphs (f)(2) and (f)(3) of General Order No. 6 appear to parallel one another in many respects. Should the information required under EAR § 743.8(c) also be included in annual reports regarding deemed exports and deemed reexports of 3E905 GAAFET technology under paragraph (f)(2)? If so, we recommend that BIS clarify this in the final IFR.

Comment II.B: BIS should clarify several provisions related to the new ECCN 3E905.

Under the IFR, BIS has added 18 new “900 series” ECCNs, including new ECCN 3E905, which controls GAAFET technology. SIA requests BIS clarify several questions:

- ECCN 3E905 applies to process "technology" exclusively for the "development" or "production" of GAAFET structures of integrated circuits at a semiconductor wafer production facility. The term "wafer production facility," however, is not defined in the IFR. We recommend BIS define this term in the final IFR, to include identifying a specific number of wafers a facility must produce in a period of time to meet the definition.

- The preambular text in the IFR states that the "General Grandfathering Clauses" at EAR § 742.4(a)(5)(ii)(A) (for the new NS control) and 742.6(a)(10)(ii)(A) (for the new RS control) only apply to foreign person employees and contractors that already had access to the relevant technology or software as of September 6, 2024. However, neither the preamble text with respect to the GAAFET GL nor the regulatory text of the General Grandfathering Clauses (at EAR § 742.4(a)(5)(ii)(A) and 742.6(a)(10)(ii)(A)) or paragraph (f)(2) of the GAAFET GL (at General Order No. 6 under Supp. No. 1 to EAR Part 736) refer to pre-existing access to the relevant technology or software. Rather, the regulatory text in both cases refers only to individuals already employed as of September 6, 2024 (though the regulatory text in both cases does refer to "future advancements or versions of the same" technology or software). Is pre-existing employment as of September 6, 2024, sufficient for an employee or contractor to be eligible to receive 3E905 GAAFET technology under the General Grandfathering Clauses and paragraph (f)(2) of the GAAFET GL? Or do both tests – i.e., both (1) pre-existing employment and (2) pre-existing access to the relevant technology – need to be met? If so, we recommend BIS clarify this requirement in the final IFR.

Comment II.C: BIS should clarify the scope of ECCN 3D907.

In the IFR, ECCN 3D907 is defined as "software" designed to extract "GDSII" or equivalent standard layout data and perform layer-to-layer alignment from SEM images, and generate multi-layer "GDSII" data or the circuit netlist. However, it is unclear whether 3D907 covers only software that can extract the entire GDSII file, or whether it also covers software that can extract part of the GDSII data. BIS should clarify the scope of the ECCN 3D907 to address this question.

Comment II.D: The GAAFET General Licenses in the IFR, including the deemed export and deemed reexport authorizations, are necessary to maintain supply chain continuity and ensure that U.S. companies can recruit and retain workforce talent.

GAAFET technology refers to a cutting-edge chip architecture that is poised to become part of the most advanced semiconductor designs over the next decade as the ability to scale fin field-effect transistors (FinFET) starts to become prohibitive. GAAFET transistor structures will enable higher performance across a range of applications, including 5G connectivity, AI solutions, and automotive technology. Because of their low power consumption, GAAFET structures are also more environmentally friendly than

FinFET designs. Therefore, it is crucial that U.S. companies working on GAAFET technologies can out-innovate their global competitors by both retaining talent and sustaining their ongoing multinational collaborations.

We appreciate that BIS has continued its recent efforts to implement a modified approach to deemed export and reexport controls in rules impacting the semiconductor industry. Specifically, the IFR adds the General License (GL) in new General Order No. 6, paragraph (f) of EAR Part 736, Supp. No. 1. Paragraph (f)(1) of the GL allows exports, reexports, and in-country transfers to specific end users located in countries listed in Country Groups A:5 and A:6. Paragraph (f)(2) of the GL authorizes deemed exports or deemed reexports of GAAFET technology (including for future advancements or versions of the same technology) to non-U.S. person employees or contractors under a grandfathering clause.

As SIA has previously noted, a key factor driving growth and innovation in the U.S. semiconductor industry and across the broader tech sector is the availability of highly educated professionals – from both the U.S. and abroad – to create jobs and develop new technologies.[3] In the U.S., there is a significant gap between the number of U.S. persons qualified for technical positions in the semiconductor industry and the number of positions U.S. companies need to fill.[4] To bridge the workforce gap, U.S. companies need access to the best talent, which may be a non-U.S. person.

Comment II.E: BIS should consider an amendment to General Order No. 6 to authorize intracompany exports, reexports, and transfers of ECCN 3E905 technology to or within Country Group A:5 and A:6 countries.

To reduce unnecessary regulatory burden among corporate affiliates in allied countries with respect to the development and production of advanced node semiconductors, we respectfully request that BIS consider amending paragraph (f)(1) of General Order No. 6 (Part 736, Supp. No. 1) to authorize the export and reexport to, and transfers within, countries in Country Groups A:5 and A:6 of 3E905 technology if such exports, reexports, or transfers are made by and among corporate affiliates of companies organized under the laws of and located in the United States or Country Groups A:5 or A:6. We suggest the following modifications to the regulatory text, notated in bold type below:

> *(f) General Order No. 6 of September 6, 2024.*
>
> *(1) GAAFET exports, reexports, and transfers (in-country). This General License (GL) authorizes the export, reexport, or transfer (in-country) of GAAFET "technology" specified in ECCN 3E905 for the "development" or "production" of*

[3] See: https://www.semiconductors.org/policies/workforce/.

[4] *Chipping Away: Assessing and Addressing the Labor Market Gap Facing the U.S. Semiconductor Industry*, Semiconductor Industry Association, July 8, 2023, https://www.semiconductors.org/wp-content/uploads/2023/07/SIA_July2023_ChippingAway_website.pdf.

> *integrated circuits to end users located in a destination specified in Country Group A:5 or A:6 of supplement no. 1 to part 740 of the EAR when:*
>
> > *(i)* ***such exports, reexports, or transfers (in-country) are by and among corporate affiliates of companies that are headquartered in the United States or a destination specified in Country Group A:5 or A:6; or***
> >
> > *(ii)* ***in all other cases,*** *that "development" or "production" began to be performed on or prior to September 6, 2024.*

Amending General Order No. 6 as proposed would be consistent with U.S. policy and would not increase the risk that 3E905 technology would or could be illegally diverted to China or other countries of concern. As BIS stated in its preamble as the policy basis for the general license, our suggested edit would "support the U.S. technology leadership through ongoing collaboration with established partners in allied countries." To further support this objective, we suggest that BIS separate the grandfathering concept for projects that were ongoing as of September 6, 2024 from technology transactions among companies within the same allied-headquartered corporate families. Applying the current grandfathering limitation to corporate affiliates in Country Group A:5 or A:6 countries would unnecessarily increase the regulatory burden for affiliates of U.S.- and allied-headquartered companies and the license review burden for BIS and its interagency partners.

The licensing policy for exports, reexports, and in-country transfers to or within Country Group A:1 is already a "presumption of approval," and all other destinations except for those in Country Groups D:1 and D:5 are subject to a case-by-case license review policy. Should BIS accept the above proposed amendment, exports, reexports, and in-country transfers of 3E905 technology by U.S. or allied-headquartered companies to parties other than their corporate affiliates located in Country Groups A:5 or A:6 would still require a license or the use of License Exception IEC. The proposed amendment is also consistent with the rest of the new rule's structure and licensing requirements for countries that have not yet implemented all the plurilateral coalition controls.

Comment II.F BIS should harmonize (i) the license requirements for EUV masks referred to in the new ECCN 3B001.q, and for the 3D001 and 3E001 software and technology for such masks with (ii) the limited NS and RS license requirements for similarly sensitive items used in EUV lithography.

The IFR created a worldwide license requirement for multiple items. For example, the newly added ECCN 3B001.q imposes a worldwide NS and RS license requirement on "EUV masks and EUV reticles, designed for integrated circuits, not specified by 3B001.g, and having a mask substrate blank specified by 3B001.j." This worldwide license requirement also applies to 3D001 software "specially designed" for the "development" or "production" of 3B001.q EUV masks and 3E001 technology for the

"development" or "production" of 3B001.q EUV masks. This worldwide license requirement, however, does not appear to align with existing controls on other similarly sensitive items used in EUV lithography, such as items described in ECCNs 3B001.j (EUV mask substrate blanks), 3B001.k (equipment designed for ion beam deposition or physical vapor deposition of a multi-layer reflector for "EUV" masks), 3B001.n (equipment designed for coating, depositing, baking, or developing photoresist formulated for "EUV" lithography), and 3B002.c (inspection equipment designed for "EUV" mask blanks or "EUV" patterned masks), all of which are only controlled for National Security (NS) and Regional Stability (RS) reasons to Macau and a Country Group D:5 destination.

We understand the policy reasons why BIS imposed worldwide license requirements on the items subject to the controls under the IFR. When an allied or partner country adopts comparable controls over the same items in its export control system, then the covered items would be exportable to that country without the need for individual licenses under new License Exception IEC. This difference in license requirements for similarly sensitive items, however, creates unnecessary internal compliance complexity and licensing burden on exports to allied and partner countries – i.e., those in Country Groups A:1, A:5, or A:6 – for which there are no national security or foreign policy concerns to limit the export of such items. Indeed, the license review policy for exports of the worldwide-controlled items to such countries is a "presumption of approval."

In addition, changing the worldwide license requirements for such items to the traditional NS and RS controls for limited destinations would ***not*** result in loss of control by the U.S. government over the reexport of such items from A:1, A:5, or A:6 countries to other destinations because U.S.-origin items and foreign-origin items within the scope of the *de minimis* rule or the National Security and potentially other foreign direct product rules would remain "subject to the EAR" and require a license if ever shipped from such countries to those outside of Country Groups A:1, A:5, or A:6.

We respectfully submit that items of similar sensitivity should be controlled at the same level. We do not see a policy reason for controlling EUV masks and reticles described in ECCN 3B001.q more strictly than the other similarly sensitive items used in EUV lithography. As such, we request that BIS harmonize the license requirement for ECCN 3B001.q items and related software and technology with the license requirements for the other items used in EUV lithography. That is, we ask that the license exceptions available for other ECCNs (e.g., ECCN 3B001.g) be available for EUV reticles controlled pursuant to ECCN 3B001.q.

Comment II.G BIS should address the inconsistency between the controls on integrated circuits and the controls on masks used to produce integrated circuits by aligning the licensing standards.

The newly added ECCN 3B001.q controls "EUV" masks and "EUV" reticles, designed for integrated circuits, not specified by 3B001.g, and having a mask "substrate blank"

specified by 3B001.j. The IFR imposes a worldwide NS and RS license requirement on such 3B001.q items.

ECCN 3B001.g controls masks and reticles, designed for integrated circuits controlled by 3A001. ECCN 3B001.g items are only subject to NS2 control.

We understand that ECCN 3A001 controls some of the most sensitive integrated circuits. Thus, it makes sense that masks designed for such 3A001 integrated circuits are subject to stricter controls than masks designed for non-3A001 integrated circuits. Under the IFR, however, the reverse is true – 3B001.g masks designed for 3A001 integrated circuits are not subject to a worldwide license requirement, whereas 3B001.q masks designed for non-3A001 integrated circuits are subject to a worldwide license requirement.

We respectfully ask that BIS address this inconsistency by applying the same licensing standard in 3B001.g – which is not a worldwide license requirement – to ECCN 3B001.q.

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Thank you for the opportunity to comment on the IFR. SIA looks forward to continued partnership with BIS and other agencies in providing support and feedback regarding export control policy, particularly with respect to semiconductors.

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