Comments of the
Semiconductor Industry Association (SIA)
On the
CHIPS Program Office (CPO)
National Institute of Standards and Technology (NIST)
Proposed Rule
On
Preventing the Improper Use of CHIPS Act Funding
RIN 0693-AB070, NIST-2023-0001
88 Fed. Reg. 17439 (March 23, 2023)

May 22, 2023

The Semiconductor Industry Association (SIA)[1] appreciates the opportunity to comment on the Proposed Rule of the CHIPS Program Office (CPO) within the National Institute of Standards and Technology (NIST) of the Department of Commerce (collectively, "Commerce" or "the Department") on Preventing the Improper Use of CHIPS Act Funding (collectively, "the guardrails" or "the Proposed Rule"). SIA looks forward to future engagement and partnership as the CPO advances its important work in implementing the guardrails on the incentives funded in the historic CHIPS and Science Act.[2]

SIA supports the economic and national security objectives of the CHIPS Act and agrees with the stated mission from the preamble that the CHIPS Incentives Program "aims to strengthen the resilience and leadership of the United States in semiconductor technology, which is vital to national security and future economic competitiveness of the United States." (88 Fed. Reg. at 17440). SIA believes the regulations implementing the guardrails should be designed to achieve its goals while avoiding unnecessary supply chain disruptions and provide predictability and transparency, consistent with the statutory text of the CHIPS Act.[3]

The guardrails in the CHIPS Act were enacted in recognition of the complex role of China in the global semiconductor ecosystem, the global supply chain and economy as a whole, and the national security landscape. For the global semiconductor industry, China is simultaneously: (1) an enormous market, comprising approximately one-third of all chip sales; (2) a major part of the semiconductor supply chain, with about 20 percent of front-end capacity and nearly 40 percent of back-end capacity; and (3) a major competitor, with a growing industry in all segments of semiconductor research, design, fabrication, packaging, equipment, and materials. Given this multifaceted and complex relationship, Congress constructed a complementary statutory framework to ensure that as the U.S. provided incentives to attract investments in new semiconductor fabrication facilities to strengthen the economy and make the domestic supply

[1] The Semiconductor Industry Association (SIA) is the voice of the semiconductor industry, one of America's top export industries and a key driver of America's economic strength, national security, and global competitiveness. Semiconductors – the tiny chips that enable modern technologies – power incredible products and services that have transformed our lives and our economy. The semiconductor industry directly employs over a quarter of a million workers in the United States, and U.S. semiconductor company sales totaled $275 billion in 2022. SIA represents 99 percent of the U.S. semiconductor industry by revenue and nearly two-thirds of non-U.S. chip firms. Through this coalition, SIA seeks to strengthen leadership of semiconductor manufacturing, design, and research by working with Congress, the Administration, and key industry stakeholders around the world to encourage policies that fuel innovation, propel business, and drive international competition. Additional information is available at www.semiconductors.org.
[2] Public Law 117-167.
[3] 15 USC Ch. 72A

chain more resilient, it would restrict certain investments and limit the flow of sensitive technologies to China to address national security concerns and supply chain dependence. Consistent with this approach, the "guardrails" established by the CHIPS Act focus primarily on limiting increases in advanced semiconductor manufacturing capacity in China and the transfer of know-how of certain semiconductors to China by funding recipients, while at the same time allowing for the continued operation of existing legacy facilities and the construction of new or expanded legacy facilities predominantly serving the China market. These exceptions to the guardrails for the continued operation of existing legacy facilities in China are necessary to avoid causing disruption to the global chip supply chain and protect prior investments.

In executing this complex framework in the Proposed Rule, however, SIA believes Commerce, in certain instances, needs to strike a better balance. As set forth in detail below, certain aspects of both the expansion clawback[4] and the technology clawback[5] should be modified to better implement the statute and achieve the proper balance struck by Congress in the CHIPS Act. For example, while Congress expressly exempted existing facilities for manufacturing legacy semiconductors from the "expansion clawback," certain aspects of the Commerce proposal impair the ability of funding recipients to maintain the commercial viability of their existing legacy facilities. Similarly, while Congress restricted funding recipients from engaging in joint research or technology licensing with a foreign entity of concern, Commerce proposal extended this restriction in an overly broad manner to include ordinary business activities such as patent licensing and participation in standards development organizations. If implemented as currently drafted, the Proposed Rule could unnecessarily hamper the competitiveness of funding recipients among industry competitors and increase the administrative burden and cost of compliance with the Proposed Rule's requirements. SIA's comments seek to advance the economic and national security goals of the CHIPS Act while enabling funding recipients to continue these ordinary business activities, as intended by Congress.

I. Expansion Clawback

In enacting the financial assistance program under the CHIPS Act and the "advanced manufacturing investment credit" under Section 48D of the Internal Revenue Code, Congress included "guardrails" to ensure that companies receiving CHIPS grants or claiming the tax credit would not build new semiconductor manufacturing facilities (except for facilities that produce legacy semiconductors and predominantly serve the market of the foreign country of concern) or expand existing facilities that produce non-legacy semiconductors in foreign countries of concern. Congress took this action to prevent the CHIPS funding or tax credit from effectively subsidizing new construction or the significant expansion of non-legacy manufacturing capacity in foreign countries of concern. Congress indicated the guardrails are an essential part of the overall goal of the CHIPS Act to build a stronger semiconductor ecosystem in the U.S. and a more resilient global supply chain.

Certain requirements in the Proposed Rule, however, go beyond the goal set forth by Congress in the plain terms of the statute and otherwise unduly restrict ordinary business activities in the semiconductor industry. SIA calls on Commerce to revise certain aspects of the proposal consistent with the language of the CHIPS Act and provide more flexibility for compliance for funding recipients that have existing legacy manufacturing facilities in a country of concern.

[4] 15 U.S.C. 4652(a)(6)
[5] 15 U.S.C. 4652(a)(5)(C)

A. The CHIPS Act expressly exempts existing legacy facilities from coverage under the guardrails.

1. Revisions needed to implement congressional intent

On or before the date of a CHIPS grant award, Congress requires Commerce execute an agreement with a proposed recipient specifying that the entity "may not engage in any significant transaction . . . involving the material expansion of semiconductor manufacturing capacity" in China or another foreign country of concern. (15 U.S.C. § 4652(a)(6)(C)(i)). However, Congress created two exceptions to this general rule. The CHIPS Act expressly states that the prohibition shall not apply to:

> (I) existing facilities or equipment of a covered entity for manufacturing legacy semiconductors; or
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> (II) significant transactions involving the material expansion of semiconductor manufacturing capacity, that – (aa) produces legacy semiconductors; and (bb) predominately serves the market of a foreign country of concern. (15 U.S.C. § 4652(a)(6)(C)(ii)).

Consistent with the broader economic and national security goals of the CHIPS Act, these two exceptions incentivize investments in the U.S. semiconductor ecosystem and rebalance the supply chain to make it more resilient in the long term, without causing disruptions in the short term.

In the preamble to the Proposed Rule, the CPO clearly recognizes the intent of Congress to exclude existing legacy facilities as a means of avoiding a potentially severe disruption of the global semiconductor supply chain:

> In recognition that some potential applicants for CHIPS Incentives may have existing facilities in foreign countries of concern, and to minimize potential supply chain disruptions, the Act includes exceptions for certain transactions involving older (legacy) semiconductor manufacturing in a foreign country of concern. (88 Fed. Reg. at 17440).

The Proposed Rule includes language that mirrors the language of the CHIPS Act, stating that the manufacturing expansion prohibition "does not apply to – (1) A funding recipient's existing facilities or equipment for manufacturing legacy semiconductors that exist on the date of the award." (15 CFR § 231.202(a)).

The proposed definition of an "existing facility," however, dilutes the exemption set forth in the statute. First, the proposed definition states: "Existing facilities shall be defined by their semiconductor manufacturing capacity at the time of the required agreement; a facility that undergoes significant renovations after the required agreement is entered into shall no longer qualify as an 'existing facility.'" (§ 231.103). The Proposed Rule then defines a "significant renovation" as "any set of changes to a facility that, in the aggregate during the applicable term of the required agreement, increase in manufacturing capacity (as defined in 231.119) by adding an additional line or otherwise increase semiconductor manufacturing capacity by 10 percent or more." (§ 231.122).

The Proposed Rule's definition of "significant renovation" is found nowhere in the text of the CHIPS Act and needlessly narrows the scope of the exemption adopted by Congress. The statute clearly states that the required agreement restricting transactions to expand

semiconductor manufacturing capacity in a foreign country of concern "shall not apply to" specified circumstances, including "existing facilities or equipment of a covered entity for manufacturing legacy semiconductors." Despite this clear statutory language, the Proposed Rule substantially narrows the exemption provided by Congress for existing legacy facilities and limits the ability of companies to protect and maintain past investments in these existing facilities.

China is an important player in the global semiconductor ecosystem, representing approximately 21% of global overall manufacturing capacity[6] and a substantial share of global capacity for legacy semiconductors (19% of 28-45nm logic, 23% of >45nm logic, and 14% of memory).[7] Approximately two-third of this capacity is held by Chinese companies, with the remaining one-third held by foreign companies.[8] China is also home to the largest share of global assembly, test, and packaging (38%).[9] Potential CHIPS Act funding recipients have numerous existing legacy facilities in China, and it is critical for these companies to be able to protect their past investments in these facilities by ensuring they remain commercially viable.

SIA calls on Commerce to make certain revisions to the proposal, including the modification of the "significant renovation" restrictions on existing legacy facilities to reflect Commerce's stated intent to "ensure minimal disruptions to revenues, for the foreseeable future, to firms that currently have productive capacity in countries of concern." (88 Fed. Reg. at 17443). With these changes, the commercial viability of existing legacy facilities can be maintained during the applicable term of the guardrails and advanced manufacturing investment credit.

Specifically, Commerce should revise the definition of "significant renovation" to limit it to new cleanroom construction or the addition of a manufacturing line that is not part of the legacy facility's designed capacity level. Alternatively, significant renovation could be defined as an increase in the square footage of an existing facility by a specified percentage. Either modification will allow equipment upgrades and replacements, software development efficiencies, maintenance activities, the completion of ramping up activities, and the addition of originally planned lines that may have the effect of increasing manufacturing capacity in order to maintain the facility's commercial viability.

> Recommended change to §231.122 Significant renovations
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> *Significant renovations* means building new clean room space or ~~Semiconductor manufacturing capacity (as defined in § 231.119) by~~ adding an additional line that is not part of the semiconductor manufacturing capacity level for which the facility was designed. ~~or otherwise increase semiconductor manufacturing capacity by 10 percent or more.~~

If Commerce accepts this revision, modifications to the definition of "existing facility" would be required.

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[6] SIA, State of the Industry Report, November 2022 (*Available at* https://www.semiconductors.org/wp-content/uploads/2022/11/SIA_State-of-Industry-Report_Nov-2022.pdf)
[7] SIA/BCG, Strengthening the Global Semiconductor Supply Chain in an Uncertain Era, April 2021 (*Available at* https://www.semiconductors.org/wp-content/uploads/2021/05/BCG-x-SIA-Strengthening-the-Global-Semiconductor-Value-Chain-April-2021_1.pdf)
[8] SIA Research
[9] Ibid.

Recommended corresponding change to § 231.103 Existing facility

Existing facility means any facility built, equipped, and operating ~~at the semiconductor manufacturing capacity level for which it was designed~~ prior to entering into the required agreement. Existing facilities must be documented in the required agreement. ~~Existing facilities shall be defined by their semiconductor manufacturing capacity at the time of the required agreement;~~ A facility that undergoes significant renovations after the required agreement is entered into shall no longer qualify as an "existing facility." The Secretary, in consultation with the Secretary of Defense and Director of National Intelligence, may determine that a facility, based on the facts and circumstances, including where construction is underway and the facility is not yet operating, is an existing facility.

These proposed changes will advance the goal of preventing the addition of significant manufacturing capacity in a country of concern while also reducing overall complexity and improving accountability, because physical expansions are easier to identify and less company- or technology- specific than capacity measured by output. This approach will (1) ensure that the exception is not being circumvented by building new, adjacent structures to existing facilities and (2) allow all existing facilities to remain commercially viable and competitive. Owners of these existing facilities should be able to complete their facility as it was designed, which includes the upgrade and replacement of equipment, the finishing of the ramping up process, the installation of equipment that has been purchased but not delivered, full capacity utilization as market conditions require, maintenance and refurbishment of equipment, and other activities that may be needed for the facility to operate at its designed capacity.

2. Alternative proposed revision to implement congressional intent

If Commerce does not accept the proposed revision in I.A.1., SIA recommends alternative revision to these definitions. The Proposed Rule inconsistently defines the baseline for semiconductor manufacturing capacity of existing facilities. The current definition of "existing facility" first describes an existing facility as "operating at the semiconductor manufacturing capacity level for which is was designed," but subsequently states that existing facilities "shall be defined by their semiconductor manufacturing capacity at the time the required agreement is signed." (§231.103). These appear to be two very different measurements of "manufacturing capacity" for the purpose of determining if the expansion clawback has been violated or whether an exception applies.

Most facilities do not always run at their full designed capacity. Specifically, for many facilities, there could be a significant gap between the planned/designed capacity of a facility and its actual output at the time a funding agreement is signed, given market conditions, ramping up activities, and other factors. Production also fluctuates from one quarter to another based on market conditions and product demand. Others may be awaiting the installation of one or more pieces of new or replacement equipment that had been purchased or ordered before the Proposed Rule was issued and should be considered part of the semiconductor manufacturing capacity level for which the facility was designed. Revising the definition of "existing facility" to account for the full designed capacity at the time the facility was planned will allow funding recipients to, as the preamble states, "maintain productive capacity in foreign countries of concern and produce semiconductors that fall within the thresholds contemplated in the proposed regulation." (88 Fed. Reg. at 17442).

The clarification of this baseline in the definition of "existing facility" is necessary to protect the significant investments in these facilities, which can take years to build and may involve billions of dollars. As the preamble to the Proposed Rule recognizes, "[a]bandoning a finished or ongoing project could jeopardize customer relationships and ongoing revenue" and that once "projects are underway, there likely would be significant costs to reverse such decisions" (88 Fed. Reg. at 17443). There are major unrecoverable costs for a manufacturing facility for which the construction was underway before the Proposed Rule was issued. Some facilities may be in the process of ramping up and are not yet fully operating. Accordingly, such projects, should be considered existing facilities by determination of the Secretary, in consultation with the Secretary of Defense and Director of National Intelligence.

Alternative recommended change to § 231.103 Existing facility

Existing facility means any facility built, equipped, and operating ~~at the semiconductor manufacturing capacity level for which it was designed~~ prior to entering into the required agreement. Existing facilities must be documented in the required agreement. Existing facilities shall be defined by the~~ir~~ semiconductor manufacturing capacity level for which it was designed, including project capacity that may not be currently in production. ~~at the time of the required agreement; a~~ A facility that undergoes significant renovations after the ~~required agreement is entered into~~ date of award under 15 U.S.C. 4652 shall no longer qualify as an "existing facility." The Secretary, in consultation with the Secretary of Defense and Director of National Intelligence, may determine that a facility, based on the facts and circumstances, including where construction is underway and the facility is not yet operating, is an existing facility.

This approach would require applicants to demonstrate through construction plans or otherwise an existing facility's designed capacity in the relevant application materials. Applicants are already required to disclose information about current and future plans in foreign countries of concern, and requiring the disclosure of a facility's design capacity creates certainty for both parties on the baseline capacity, making compliance more practical and achievable.

If the definition of significant renovation is not modified to reflect the changes proposed in I.A.1, a technical correction is needed to clarify that a significant renovation occurs *either* from an additional line that increases capacity *or* another increase in capacity. Additionally, the preamble states that the CPO intends to allow funding recipients to "modestly expand capacity at existing facilities producing mature (legacy) technology" (88 Fed. Reg. at 17443). SIA suggests a limited increase in the threshold of "significant renovation" to at least 15 percent. This will help to maintain Commerce's objectives of only allowing modestly expanding capacity while ensuring existing facilities can be reasonably maintained alongside similar investments located elsewhere over the course of the 10-year period.

Recommended change to §231.122 Significant renovations

Significant renovations means any set of changes to a facility that, in the aggregate during the applicable term of the required agreement, increase semiconductor manufacturing capacity (as defined in § 231.119) by adding an additional line or otherwise increase semiconductor manufacturing capacity, in either case, by [15]~~10~~ percent or more.

B. The guardrails should allow for continued, commercially viable operations at existing facilities through reasonable accommodations

The Proposed Rule should be revised to enable funding recipients to maintain the basic competitiveness of their existing facilities. As currently drafted, the Proposed Rule would prohibit ordinary maintenance and upgrades necessary to allow the continued operation of existing facilities, even if these activities may result in an incidental increase in the capacity of these facilities.

1. Allow for reasonable, limited activities that may moderately increase capacity

The current definitions of "significant transaction" and "material expansion" will have adverse impacts on normal efficiency upgrades and ordinary productivity improvements to existing facilities during the course of facility operation. Funding recipients with existing facilities in a country of concern must be able to conduct necessary activities – such as the purchase of software, increasing the efficiency of existing equipment, replacement tools or parts, and other necessary upgrades – to effectively maintain longstanding business operations and allow such entities to realize the economic value of their investments made prior to the grant of CHIPS Act funding. New semiconductor manufacturing equipment typically has higher throughput compared to older iterations that are less efficient and often may no longer be commercially available for purchase. Likewise, software engineering improvements are periodically needed to maintain competitive operations at a facility. Under the Proposed Rule, any combination of these basic activities over time could result in an increase in semiconductor manufacturing capacity and thereby potentially violate the expansion prohibition and trigger a clawback. Such a result seems contrary to the stated objective of the preamble to "allow recipients to upgrade technology at existing foreign facilities (in compliance with export controls) if overall production capacity is not increased" (88 Fed. Reg. at 17443). The Proposed Rule should be revised to accommodate these routine upgrades, which will evolve over a 10-year period.

As noted above, the CHIPS Act expressly excludes significant transactions involving the material expansion of existing legacy facilities from these prohibitions. However, if Commerce maintains the concept of material expansion as set forth in the Proposed Rule, additional revisions to these definitions are necessary. SIA requests Commerce clarify that material expansions only pertain to additions of physical space or manufacturing lines that increase semiconductor manufacturing capacity, not the upgrade, replacement, or refurbishment of equipment. Running existing tools at higher capacity, upgrades or replacement of software, maintenance or replacement of older machines and parts with higher throughput/output, and/or engineering improvements for routine maintenance to continue current operations that increase capacity above a defined threshold at an arbitrary time should not considered material expansions. Additionally, equipment repair or replacement may be required to comply with environmental, safety, or other regulatory requirements of the country of concern. The Proposed Rule must account for such necessary action, with the alternative potentially being that certain equipment is taken out of operation. Of course, the physical expansion or addition of a manufacturing line at an existing facility (e.g., new buildings, physical expansion of a facility to add new manufacturing lines, etc.) are outside the scope of ordinary maintenance and upgrades and an increase in capacity at an existing legacy facility resulting from such activities would be subject to the prohibition.

The preamble states that the CPO intends to allow funding recipients to "modestly expand capacity at existing facilities producing mature (legacy) technology" (88 Fed. Reg. at 17443).

SIA suggests a limited increase in the threshold of material expansion to at least 10 percent. This will help to maintain Commerce's objectives of only allowing modestly expanding capacity while ensuring existing facilities can be reasonably maintained alongside similar investments located elsewhere over the course of the 10-year period.

Recommended change to §231.111 Material expansion

Material expansion means the addition of physical space or an additional line ~~or equipment~~ that has the purpose or effect of increasing semiconductor manufacturing capacity of a facility by more than ~~five~~[10] percent or a series of such expansions which, in the aggregate during the applicable term of a required agreement, increase the semiconductor manufacturing capacity of a facility by more than ~~five~~[10] percent of the existing capacity when the required agreement was entered into.

Alternatively, Commerce could exclude specific aforementioned activities as not qualifying as a material expansion.

Alternative recommended addition to the end of §231.111 Material expansion:

Upgrades and replacement of software, increasing the efficiency of existing equipment, maintenance and replacements of machines and parts with higher throughput, and engineering improvements for routine maintenance to continue existing facility operations are not considered material expansions.

2. Prevent aggregation of unrelated significant transactions, and increase the threshold amount

The current definition of "significant transaction" with a $100,000 aggregated threshold is extraordinarily low and is applied over the course of the applicable term. Replacing one piece of equipment, upgrading a ventilation system, and the vast majority of other expenses are nearly certain to exceed this threshold considering the regular costs of maintaining facility operations. In many cases, these transactions are likely to be unrelated to each other and taking place in different parts of a facility for different purposes.

Additionally, in order to better capture instances of a significant transaction, SIA encourages the Department of Commerce to consider a substantially higher threshold than $100,000. Given the capital costs associated with semiconductor manufacturing, it would not be unreasonable for Commerce to set a higher threshold.

Recommended change to §231.121(b) Significant transaction

(b) A series of transactions described in paragraph (a) of this section, that are related to each other, which, in the aggregate during the applicable term of a required agreement, are valued at ~~$100,000~~ [increased amount] or more.

3. Allow for the transfer or completion of a transfer of an existing facility from one entity to another.

The rule should accommodate instances where an existing facility in a foreign country of concern is already subject to an executed sale agreement or may be purchased during the course of the applicable term. The Proposed Rule does not include an express provision

allowing for such a transfer. The proposal should be revised to allow a transfer of an existing facility (1) from a funding recipient to a non-funding recipient; (2) from a non-funding recipient to a funding recipient; or (3) between funding recipients. Additionally, in some cases, a purchase agreement may have occurred prior to the required agreement, but the sale and transfer of semiconductor manufacturing businesses may take years to close, with the completion of one or more facilities at issue in a transaction delayed until the new owner(s) take over.

The definition of required agreement should be revised to reflect these potential scenarios.

Recommended Change to §231.115 Required Agreement

Required agreement means the agreement required under 15 U.S.C. 4652(a)(6)(C) that is entered into by a funding recipient on or before the date on which the Secretary awards Federal financial assistance under 15 U.S.C. 4652. The required agreement shall include, *inter alia,* provisions describing the prohibitions on certain joint research or technology licensing in § 231.202 and on certain joint research or technology licensing in § 231.203. The required agreement may be amended by mutual agreement of the Secretary and funding recipient at any point to recognize the purchase or sale of an existing facility, as defined by §231.103, from another entity. The Secretary shall not approve the amendment of the required agreement to include an existing facility if that facility undergone a significant renovation since the effective date of this Rule.

4. Measure capacity annually, not monthly

The measurements used to determine semiconductor manufacturing capacity under §231.119 should be on an average basis over the course of a year, rather than per month. This will provide a more accurate picture of the operations and allow for a smoothing of seasonal, natural and regular fluctuations in business operations.

Recommended change to §231.119 Semiconductor manufacturing capacity

Semiconductor manufacturing capacity means the productive capacity of a semiconductor facility. In the case of a semiconductor fabrication facility, semiconductor manufacturing capacity is measured in wafer starts per ~~month~~ year. In the case of a packaging facility, semiconductor manufacturing capacity is measured in packages per ~~month~~ year.

5. Exceptions should apply to affiliates

Consistent with 15 U.S.C. § 4652(a)(6)(C)(iii), the exceptions to the expansion clawback in the statute at 15 U.S.C. § 4652(a)(6)(C)(ii) should apply to affiliates of the funding recipient. The Proposed Rule, however, does not expressly apply the exceptions to affiliates. To make the exception meaningful, and consistent with the statute, the exceptions should apply to the funding recipient and its affiliates.

Recommended change to §231.202(a)(1) Scope

"(1) A funding recipient or its affiliates' existing facilities or equipment for manufacturing legacy semiconductors that exist on the date of the award…"

6. Commerce should have flexibility in implementing the expansion clawback

The regulations should provide Commerce with flexibility in implementing the expansion clawback to tailor restrictions to the circumstances surrounding the funding entity. The CHIPS Act states that a covered entity may not engage in certain transactions "as defined in the agreement" involving the expansion of semiconductor manufacturing capacity in foreign countries of concern. 15 U.S.C. 4652(a)(6)(C)(I). In addition, the legislation provides the Secretary with broad discretion in carrying out the CHIPS Act, including agreements "as may be necessary and on such terms as the Secretary considers appropriate." 15 U.S.C. 4659. These provisions provide Commerce with flexibility in carrying out the Act, such as having discretion to tailor requirements based on the circumstances of an individual funding entity.

C. Revisions to the definition of legacy semiconductor

1. Clarify that certain legacy 3D integration techniques are still "legacy semiconductors"

As SIA expressed to Commerce in its November 2022 response to the CPO Request for Information on Implementation of the CHIPS Incentives Program:

> The Secretary should ensure the expansion clawback provisions are implemented in a manner that avoids unnecessary disruption to existing facilities in China while the U.S. works to diversify and bolster its semiconductor supply chain. Today, China remains an important player in manufacturing, packaging, logistics point, and end-device market for the global semiconductor ecosystem across virtually all segments. Many of these facilities support key products and customers around the world, and as such, disruption to their operations would have a significant negative impact on the firms operating these facilities, as well as the broader electronics ecosystem.

As written, the Proposed Rule may be interpreted as excluding from the definition of legacy semiconductors not only advanced 3D integration concepts, such as "through silicon vias" (TSV) and "through mold vias" (TMV), but also decades-old packaging techniques such as stacking two legacy die on top of each other using wire bonds and other older packaging techniques like clips, flip-chip, and bump connections. These techniques do not create the high bandwidth or functional density needed for advanced computing, AI, or communication applications. The definition of legacy semiconductor should be clarified to include packaging that stacks die on top of each other using wire bonds and to exclude more advanced 3D packaging techniques, like TSV and TMV, occurring in a foreign country of concern.

The CHIPS Act states that "legacy semiconductor" includes any legacy generation of semiconductor technology relative to the 28-nanometer generation or older for logic (15 U.S.C. 4652(a)(6)(A)(i)(I)(bb)). The 3D integration exception to the definition of "legacy semiconductor" should therefore be clarified such that mature node concepts like vertical integration of multiple legacy semiconductors into a single package using, for example, wire bonds, clips, flip-chip, bump connections, etc. are not excepted from the definition of "legacy semiconductors."

Recommended change to §231.110(b)(3) Legacy semiconductor

(3) For the purposes of packaging facilities, semiconductors packaged utilizing advanced three-dimensional (3D) integration, such as by directly attaching one or more die or wafer, through silicon vias, through mold vias, or other advanced methods.

2. Certain packaging activity should be considered legacy, regardless of node size

It is unclear whether facilities conducting die prep or sort and assembly test that receive 3D integrated silicon products from facilities outside of foreign countries of concern are considered "legacy." Assembly test manufacturing (ATM) is an important – yet lower-value – portion of the semiconductor manufacturing process. While the regulations specifically exclude from the definition of legacy facilities that package semiconductors utilizing 3D integration, many operations in China perform assembly test, including general (non-3D) packaging. As such, the regulations should specifically include ATM that uses non-3D packaging in its operations in the definition of legacy semiconductor. Given that ATM is generally a back-end operation, with billions of dollars invested in pre-existing facilities, it is appropriate for these operations to be viewed under the definition of "legacy" unless they specifically perform advanced 3D integration in a foreign country of concern.

Recommended addition of 231.110(a)(4) Legacy semiconductor

(4) Notwithstanding (a)(1-3) above, packaging or other operations in assembly test plants that do not utilize 3D integration, under (b)(3) of this section, in their operations in a foreign country of concern."

3. Modify the definition of legacy semiconductor for logic

The CHIPS Act defines "legacy semiconductor" to include "28-nanometer generation or older" technology. 15 U.S.C. 4652(a)(6)(A)(i). The proposed language defines 28nm technology as having "a gate length of 28 nanometers." This language would improperly exclude from the definition of "legacy semiconductor" technologies using the planar transistor architecture that should be considered as the same 28nm generation technology.

Recommended change to §231.110(a)(1) Legacy Semiconductor

(1) A digital or analog logic semiconductor that is of the 28-nanometer generation (including 28-nanometer generation or older logic integrated circuits manufactured using a planar transistor architecture) or older ~~(*i.e.*, has a gate length of 28 nanometers or more for a planar transistor)~~;

D. Predominately Serves the Market of Concern

The CHIPS Act includes an exception for legacy facilities that predominantly serve the market of the foreign country of concern, and the Proposed Rule sets forth provisions attempting to implement this exception. The Proposed Rule defines a facility as predominantly serving the market of a foreign country of concern when 85 percent of the output of the facility are "incorporated into final products . . . that are used or consumed in that market," and requires funding recipients to provide documentation demonstrating that a particular facility meets this standard.

SIA noted in its submission to the November Request for Information by the CPO:[10]

> Unlike manufacturers of "ready-to-use" assembled products, semiconductor companies do not typically have comprehensive visibility on the geographic market of end use for their products. This is because they do not sell products directly to consumers but to companies such as original equipment manufacturers (OEMs) and other device integrators, and are often sold and re-sold through a long chain of distributors. This makes it difficult, if not impossible, to follow each product to its ultimate user. Accordingly, the market for the output of semiconductor companies is determined by the demand of these large, downstream producers. In this context, serving the market of a given country means meeting demand in a given country for components to be delivered in that country. As a result, location of product shipment rather than location of end use should be the determining measure for market services. Supply chain investments, including in assembly, test, and packaging operations, have been made to align with the location of shipment.
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> The Merriam Webster definition of "predominant" is "being most frequent or common." Similarly, Black's Law Dictionary defines the term as that which is "greater or superior…to others which it is connected or compared." CPO should interpret the terms in §4652(a)(6)(C)(ii) with flexibility in order to allow operations vital to maintaining healthy supply chains for semiconductors.

As an alternative, SIA would recommend lowering the threshold for "predominately serves the market" to 70 percent. In light of the above difficulty for a manufacturer to determine where the finished product is consumed, funding recipients will likely afford themselves a substantial buffer to ensure compliance, likely in the 5-10 percent range, but in some cases up to 15 percent. Accordingly, the proposed 85 percent threshold, in practice, will be somewhere between 90-100 percent, which would exceed the level of a "predominately" standard. Accompanying this more reasonable threshold, SIA would suggest that Commerce accept "documentation" under §231.302(g) and information in the "statement" under §231.302(h) that is derived from a good faith inquiry by the funding recipient.

E. Improved and transparent timeline for notification review time

Under the Proposed Rule, funding recipients are required to submit a notification to the Secretary regarding any planned transaction for its existing operations, and Commerce may request additional information from the funding recipient. The current proposal, however, is too open-ended and fails to set forth any timeline for intermediate action by the Secretary prior to the initial determination by notifying the funding recipient that additional information will be requested. The result may be an inefficient and open-ended process that could disrupt proposed activities that are permissible under the CHIPS Act and the applicable regulations. To address these concerns, the Secretary should be required to review the notification and request additional information within 10 business days in order to allow the funding recipient to begin preparing to provide additional information as requested by the Secretary. Just as the Secretary is required to make initial determination within 90 days, the Secretary should be required to

[10] Comments of the Semiconductor Industry Association (SIA) on the CHIPS Program Office Request for Information on Implementation of the CHIPS Incentives Program, 87 Fed. Reg. 61570 (Oct. 12, 2022), November 14, 2022 (Available at https://www.semiconductors.org/wp-content/uploads/2022/11/SIA-CPO-CHIPS-RFI-Response-11_14_22.pdf, page 20)

notify the funding recipient that additional information will be requested within a specified timeline.

Recommended change to §231.304(b) Initiation of review

(b) Upon receipt of a notification submitted pursuant to § 231.301, the Secretary will review the notification for completeness and may request additional information from the funding recipient within 10 business days. Once a notification is deemed complete, the Secretary will initiate a review of the transaction, notify the funding recipient in writing following the initiation of review, and consult with the Secretary of Defense and the Director of National Intelligence.

F. Improving the process for mitigation of national security risks by including a mechanism for waiver in the required agreement

The Proposed Rule provides a mechanism by which "a funding recipient or its affiliate is planning to undertake or has undertaken a significant transaction that is in violation of [the expansion clawback]" may enter into an agreement with the Secretary to mitigate the risk to national security and/or waive the recovery of funds (§231.306). SIA supports the intent of this provision, but we have certain suggestions to improve its implementation.

The waiver provision currently applies only in the case of a planned or executed transaction that would trigger an expansion clawback. In order to allow Commerce and funding recipients to begin information sharing related to any planned transaction that has the *potential* to violate the expansion clawback, the Proposed Rule should be modified to allow for negotiation to mitigate national security risks at the time of the required agreement. This approach will allow funding recipients greater business planning to determine at the time of the required agreement which (if any) planned transactions may be subject to §231.306. Likewise, this will allow Commerce to up front prioritize economic and national security objectives by avoiding the scenario presented by §231.305(c)(4) where "the funding recipient must cease or abandon the transaction." This will also help to ensure a robust pool of CHIPS incentives applicants remain throughout the grant negotiation process.

Recommended change to §231.306 Mitigation of national security risks

If the Secretary, in consultation with the Secretary of Defense and the Director of National Intelligence, determines that a funding recipient or its affiliate is planning to undertake or has undertaken a significant transaction that is in violation of § 231.202, the Secretary may seek to take measures in connection with the transaction to mitigate the risk to national security. Such measures may include the negotiation of an agreement with the funding recipient to mitigate the risk to national security in connection with the transaction. The Secretary also may decide to waive the recovery of funds. The Secretary may also negotiate in such an agreement with the funding recipient ways to mitigate the risk to national security in connection with a planned transaction that has the potential to violate §231.202.

G. Consolidate review process between Treasury and Commerce on the recapture and expansion clawback

It is likely many funding recipients who receive incentives under the CHIPS Act will also be eligible for the advanced manufacturing investment credit, and such entities would be subject to

duplicative prohibitions and competing review processes by both the Commerce and Treasury Departments. To minimize the burden on funding recipients and make more efficient use of governmental resources, Commerce and Treasury should grant enforcement authority to a single agency for those funding recipients who are also claiming the advanced manufacturing tax credit. Imposing notification and review requirements at multiple agencies would be overly burdensome and time consuming, and result in duplicative agency reviews.

To reduce this duplication, SIA encourages Commerce to adopt guidelines similar to those of the Executive Order: Reorganization Plan No.4 of 1978[11] whereby the Secretary of Labor transferred certain enforcement authority for overlapping regulations to the Secretary of the Treasury. While both agencies still had an important role in oversight, the Executive Order allocated responsibilities of the various overlapping rules to a single agency. This action would be equally appropriate in instances where companies are receiving both a grant and claiming the tax credit and thus subject to the same restrictions. As the Proposed Rules are intended to be "harmonized with existing oversight and restrictions on these types of transactions imposed by the Export Administration Regulations (15 CFR parts 730 through 744)" (88 Fed. Reg. at 17445), streamlining the review of the recapture of advanced manufacturing tax credit with that of the expansion clawback under the Department of Commerce would be an efficient outcome.

Consolidating the enforcement of the prohibited activities and recapture of the advanced manufacturing tax credit would ease both the administrative and compliance burdens for those recipients and taxpayers utilizing both programs to increase U.S. semiconductor manufacturing capacity, while also resulting in a more efficient use of government resources. We encourage the Secretary to consider a similar approach to reduce duplication and ensure that these programs designed to encourage activity in the U.S. are fully utilized.

Similarly, in order to reduce excessive, duplicative, and/or unnecessary compliance and administrative burdens, the Department of Commerce and Department of the Treasury should allow for consistency in reporting and reciprocity of processes such as agreements to mitigate national security concerns and waivers of the recovery of funds under §231.306, as well as any audits. This will allow for cross-departmental coordination and reduce compliance burdens, as well as to avoid any potential misalignment between Commerce and Treasury.

Such a process would be similar to many regulatory processes currently in place around the federal government to ease the potential burden on grant and contract recipients:

- One federal agency (the “cognizant agency for indirect costs”) approves the indirect rates for an entity that pursues grants at multiple federal agencies. 2 C.F.R. 200.1; 48 C.F.R. 42.003.
- One federal agency (the “cognizant agency for audit”) is the audit agency for an entity that pursues grants at multiple federal agencies. 2 C.F.R. 200.513 (“the designated cognizant agency for audit must be the Federal awarding agency that provides the predominant amount of funding directly (direct funding)”).
- One federal agency takes the lead on suspension and debarment matters for all federal agencies. 2 C.F.R. 180.620 (“when more than one Federal agency has an interest in a suspension or debarment, the agencies may consider designating one agency as the lead agency for making the decision.”)
- One federal agency approves the novation of all the federal contracts of an entity that is sold by one private entity to another. 48 C.F.R. 42.1202.

[11] Available at https://www.dol.gov/agencies/ebsa/laws-and-regulations/laws/executive-orders/4#section5

II. Technology Clawback

The CHIPS Act prohibits a funding recipient or its affiliates from knowingly engaging in any joint research or technology licensing with a foreign entity of concern that relates to a technology or product that raises national security concerns (15 U.S.C. 4652(a)(5)(C)). Congress adopted this requirement to ensure that companies receiving CHIPS funding would not enable the technological capabilities of a foreign country of concern in a way that harms U.S. economic and national security by transferring critical know-how through joint research or technology licensing. SIA supports this goal and offers several suggestions to improve the proposed regulations implementing this requirement.

A. Improvements to the definitions of "joint research" and "technology licensing"

The proposed definition of "technology licensing" broadly covers "patents, trade secrets, or know how," potentially restricting normal business activities unrelated to national security.

In order to allow funding recipients to best comply with the technology clawback, the Department of Commerce should provide clarity on the type of technology transfers that are captured by the rule. The emphasis should be on agreements involving the transfer of critical technology or know-how and make it clear that customary business discussions that may include general technical information are outside the reach of the rule. Such customary business discussions often include technical information required to 1) optimize a semiconductor component with the rest of an end-system or consumer product's performance or cost, or 2) design a product for the funding recipient to sell to the foreign entity of concern, neither of which should be subject to the technology clawback. Commerce should provide a non-exhaustive list of the types of agreements or transactions that meet the definition and those that would not in order to provide additional distinction from the customary business discussions that occur when services and products are sold to customers.

As stated in the preamble, the Proposed Rule was designed to be "harmonized with existing oversight and restrictions on these types of transactions imposed by the Export Administration Regulations (15 CFR parts 730 through 744)" (88 Fed. Reg. at 17445). Export control licensing is the established mechanism for determining permissible technology and should remain the leading review function. Thus, Commerce should provide clarity on how the technology clawback would interact with existing export licenses for the 26 items listed in Category 3 of the Commerce Control List (supplement no. 1 to part 774 of the Export Administration Regulations, 15 CFR part 774) that are controlled for National Security reasons, as described in 15 CFR 742.4, or Regional Stability reasons, as described in 15 CFR 742.6, such as whether existing approved licenses from the Bureau of Industry and Security would be grandfathered in.

1. Patents should be excluded from the technology clawback

The proposal defines "technology licensing" to include, among other things, the licensing of patents. The inclusion of patents will unnecessarily impede ordinary business transactions that are essential to the semiconductor ecosystem and the protection and monetization of intellectual property. For example, semiconductor companies routinely engage in the cross licensing of patents to avoid patent disputes and costly litigation. Semiconductor companies also actively participate in international standards bodies, which are essential for interoperability and the overall development of technology, sometimes resulting in codification of standard essential patents (SEPs) in a standard, which are licensed on "fair, reasonable, and

nondiscriminatory" (FRAND) terms. Where disputes over patents arise, companies routinely enter into license agreements covering patented technology as a means of avoiding or settling litigation. These and other similar and related practices are routine and happen every day in the semiconductor industry. Patents are published documents, and therefore, the invention in a patent is already available and known to entities in a foreign country of concern. Restricting patent licensing fails to advance what would be a sound policy goal – the transfer of know-how relating to national security – and instead significantly disrupts normal business activities and puts funding recipients at a strategic disadvantage in litigation. Therefore, the proposed definition of "technology licensing" should be revised to exclude patent licensing from the technology clawback.

2. Allow funding recipients to engage in patent cross-licenses

If the definition of technology licensing continues to include patents, the definition should, at minimum, be amended to allow funding recipients to engage in broad patent cross-licenses.

To ensure business as a whole has freedom to operate without costly disruption, including bringing funded products to market, a U.S. company may need to grant patent licenses, including a broad cross-license to a patent portfolio, with a foreign entity of concern (which may own relevant patents) to receive reciprocal assurances sufficient to protect its business. The sale of a product or service provides an implied license to customers, usually referred to as "patent exhaustion"; thus, the current definition of "technology licensing" creates additional concern with otherwise routine and permissible commerce.

Additionally, the proposed technology guardrail fails to appreciate that in the semiconductor sector, as in many industries, the patent rights necessary to commercialize a product are frequently controlled by multiple rights holders and that bringing technology to market may well require negotiation and entering into patent cross-license agreements with foreign entities of concern.

When patent rights are fragmented, bringing a product to market requires negotiating with the multiple parties that hold rights to the different segments of technology and entering into portfolio cross licenses and patent pools to reduce the uncertainty and risk of infringement suit. By prohibiting without exception funding recipients from engaging with a foreign entity of concern in such patent cross-license agreements, the Proposed Rule risks undermining a core vision of the incentives program by investing in the research and development of technologies that cannot, in practice, be brought to market for the benefit of the U.S. or our allies. Moreover, amendments to the technology clawback are necessary to ensure that U.S. companies are not forced to choose between accepting CHIPS grant funding or protecting themselves against patent claims from litigious companies.

To remedy these shortcomings, we recommend excluding agreements that grant only patent rights, in which no technology or know-how is transferred to a foreign entity of concern beyond the publicly available information in the published patent.

3. Allow for participation in international collaborative efforts such as standards organizations

Additionally, Commerce should provide clarification regarding the transfer of know-how in standards development organizations with the intent of the information ultimately being

published or made available in research consortia settings, including but not limited to instances where the funding recipient is unable to restrict the participants of the research consortia setting.

By failing to include exceptions in the technology guardrail for international collaborative efforts in standards organizations and in fundamental research activities, the technology guardrail weakens opportunities for U.S. leadership in the global semiconductor sector, which requires that U.S. entities have a seat at the table for standard setting discussions The Administration's recently announced National Standards Strategy for Critical and Emerging Technology[12] emphasizes the importance of U.S. leadership in standards setting in critical technologies, which relies on the ability of funding recipients to fully participate and lead in standards-setting bodies. While SIA supports the strategy's effort to "enhance U.S. government and like-minded nations' representation and influence in international standards governance and leadership," realizing such objective is dependent on "robust standards governance process" involving U.S. companies and, in some cases, foreign entities of concern.[13] The regulations should be revised to ensure that CHIPS grant funding recipients will not be penalized by preventing them from engaging in international standards bodies. A number of funding recipients are likely to be technology leaders who are critical to standardizing technology for the benefit of global and U.S. consumers.

Many entities that would meet the definition of "foreign entities of concern" are members of international standards setting organizations in the semiconductor space. As we have learned from the past several years of U.S. unilateral restrictions on U.S. companies participating in standard organizations with companies on the Entity List, international standards organizations will not exclude non-U.S. participants based on unilateral U.S. restrictions.[14] Furthermore, restricting which companies may participate in standards organizations puts U.S.-based standards development organizations at a disadvantage versus those located outside of the U.S.

Additionally, in a recent rulemaking, the Commerce Department's Bureau of Industry and Security (BIS) aptly described the risk of interfering with U.S. industry participation in such groups:

> Any impediment to U.S. influence in standards development forums is a national security threat to the United States because not only does it limit U.S. leadership in standards development, but other countries are already racing to fill this vacuum with their own leadership and standards. In many cases, this ceding of U.S. leadership not only undermines democratic values and U.S. national

[12] The White House, Fact Sheet: Biden-Harris Administration Announces National Standards Strategy for Critical and Emerging Technology, May 2023 (*Available at* https://www.whitehouse.gov/briefing-room/statements-releases/2023/05/04/fact-sheet-biden-harris-administration-announces-national-standards-strategy-for-critical-and-emerging-technology/)

[13] The White House, United States Government National Standards Strategy For Critical And Emerging Technology (*Available at* https://www.whitehouse.gov/wp-content/uploads/2023/05/US-Gov-National-Standards-Strategy-2023.pdf)

[14] Comments of the Semiconductor Industry Association (SIA) on Amendment to Prohibitions Pertaining to the Release of Technology to Standards Organizations Members that are on the Entity List (85 Fed. Reg. 36719 (June 18, 2020). August 17, 2020. (*Available at* https://www.semiconductors.org/wp-content/uploads/2020/08/081420.SIA_.standards.reg_.comment-SIA-Final1.pdf)

security and foreign policy interests, but it also contributes to a potential future global standards environment that actually works to oppose U.S. interests.[15]

For this reason, BIS amended the Export Administration Regulations (EAR) to authorize the release of specified items subject to the EAR without a license, including to Entity Listed parties, when that release occurs in the context of a "standards-related activity." The BIS rule provides a definition that could be readily adapted by NIST and incorporated into a "release" from the current technology guardrail rule.

4. Allow for the continued sharing of design fabrication or packaging files

In the global semiconductor industry some companies outsource fabrication and/or packaging operations to foundries and OSATs, and in doing so they may make available IP (such as a design file) to manufacturing partners. Under the proposal, such activities could be construed as transferring know-how to a foreign entity of concern, even if it does not involve the manufacturing of semiconductors critical to national security. The final regulation should clarify that the sharing of information, such as design files for fabrication and packaging as part of an outsourced manufacturing agreement, is not covered by the technology clawback.

5. Allow for intracompany transfer agreements

As proposed, the technology licensing definition may restrict funding recipients from entering into intracompany intellectual property license and transfer agreements with their affiliates, or vice versa. This has potentially wide-reaching impact for companies that utilize the well-accepted corporate practice of holding and managing intellectual property in a single entity to enable their global R&D efforts. These internal transfers and intraparty agreements are common, routine agreements and are often designed to protect intellectual property that is owned in the U.S. The proposal should be revised to allow for transfer agreements between a funding recipient and its affiliates, or between or among its affiliates.

6. Ensure general sales of parts are not prohibited

The prohibition at §231.203 on technology licensing "with a foreign entity of concern that relates to a technology or product that raises national security concerns" when combined with the definition of "technology licensing" (§231.123) could be interpreted to prohibit the sale of equipment and parts that are generally used for semiconductor manufacturing. Each part and piece of equipment sold for semiconductor manufacturing is sold with an explicit or implied license to use the intellectual property underlying the part or equipment. Under the Proposed Rule, the license to use a part or equipment that is part of a sale would fall within the definition of "technology licensing" at §231.123. Because a semiconductor part or equipment could potentially be used to manufacture any semiconductor, including technology or products that raise national security concerns or are "related" to such technology or products, basic sales appear to be prohibited.

[15] *See BIS, Interim Final Rule, Authorization of Certain "Items" to Entities on the Entity List in the Context of Specific Standards Activities, 87 FR 55241, Sept. 9, 2022.*

7. Ensure warranty, service, and support are not prohibited

Upstream equipment manufacturers have different business models, approaches to research and development, and needs for technology licensing than semiconductor manufacturers. Manufacturers of equipment and tooling spend exhaustive resources on ensuring that machinery and tools supplied to semiconductor manufacturers are operational, work as intended and are repaired as needed. The business involves not only the actual manufacturing of equipment and tooling, but critical service, warranty, and support components. Generally, semiconductor manufacturers do not have this element to their business model. For equipment manufacturers, unlike semiconductor manufacturers, the definition of "research and development" at 15 U.S.C. § 638(e)(5)(C) as incorporated into the Proposed Rule at §231.108 could prohibit ongoing warranty, service and support for customers of a funding recipient. Under the statutory definition, research and development includes the "systematic application of knowledge toward the production of useful materials, devices, and systems or methods, including design, development, and improvement of prototypes and new processes to meet specific requirements." *Id.* Warranty, service, and support that may "relate to a technology or product that raises national security concerns" should not be considered to be prohibited "joint research."

8. Allow manufacturers to "design-in" their devices into the customers' end products

Finally, Commerce should provide clarification regarding what, specifically, "research" and "jointly undertaken" mean. Semiconductor companies typically engage in normal sales activities with their customers to "design-in" their devices into the customers' end products. These discussions can involve technical matters; exchange of data including product features, product reliability, and product limitations; and consideration of alternative semiconductor products to optimize the end system's performance and cost. These standard commercial exchanges could erroneously be characterized as "a systematic application of knowledge toward the production of useful materials, devices, and systems or methods, including design, development, and improvement of prototypes and new processes to meet specific requirements" and thus be considered research under 15 U.S.C. 638(e)(5). Commerce should clarify that research, development, or engineering carried out by a funding recipient together with its customer to establish or apply a drawing, design, or related specification for the funding recipient's product is not "joint research" for purposes of the clawback provision.

Similarly, Commerce should clarify these terms to avoid this outcome in the technology licensing context by permitting disclosures of process and assembly design kits, complex design intellectual property, or foundational design intellectual property provided by a funding recipient or its affiliates to its customer solely for the design of semiconductors to be manufactured by the funding recipient or its affiliates.

9. Collaboration between equipment manufacturers and other upstream suppliers should be protected

Equipment manufacturers must work collaboratively across many countries with other upstream suppliers to ensure that chemicals and materials from specific suppliers will work as intended with semiconductor manufacturing equipment. When a semiconductor manufacturer purchases chemicals and materials necessary for manufacturing, that supply must be tested and evaluated for use on the specific manufacturing equipment. That evaluation and testing is done by the equipment manufacturer in coordination with the specific chemical and material suppliers that

will be used by the semiconductor manufacturer. This effort involves not only joint research and development, but also project-specific technology licenses that are given by the equipment manufacturer to the supplier for the purposes of research and testing using the manufacturing equipment. Without these collaborations, delivered semiconductor manufacturing equipment would not work as intended with specific chemicals and materials suppliers and the cost of ownership of semiconductor manufacturing equipment would significantly increase. The definition of "research and development" at 15 U.S.C. §638(e)(5)(C) as incorporated into the Proposed Rule at §231.108 and the definition of "technology licensing" at §231.123 could each individually prohibit ongoing collaborations between equipment manufacturers that receive CHIPS Act funds and other upstream suppliers. These prohibitions would effectively halt the collaboration among upstream suppliers.

10. Consolidated proposed revisions to technology licensing and joint research

To implement the suggestions set forth above in Sections II.A.1 through 9 of this paper, we recommend the following additions to §231.123 Technology licensing:

(a) A contractual agreement in which one party's ~~patents,~~ trade secrets~~,~~ or know-how are sold or made available to another party;

(b) Notwithstanding paragraph (a) of this section, the following is not technology licensing:

(1) Design fabrication or packaging files made available to another party through a contractual agreement in connection with semiconductor fabrication or packaging services, except for any intellectual property that is related to any item listed in Category 3 of the Commerce Control List (supplement no. 1 to part 774 of the Export Administration Regulations, 15 CFR part 774) that is controlled for National Security ("NS") reasons, as described in 15 CFR 742.4, or Regional Stability ("RS") reasons, as described in 15 CFR 742.6, or related to semiconductors critical to national security.

(2) Licensing or transfer agreements conducted exclusively between a funding recipient and its affiliates, or between or among a funding recipient's affiliates;

(3) A standards-related activity (as such term is defined in 15 CFR Part 772);

(4) Agreements that grant patent rights only with respect to "published information" (as that term is defined in 15 C.F.R. § 734.7) and no proprietary information is shared;

(5) An implied or general intellectual property license relating to the use of a product that is sold by a funding recipient or its affiliates;

(6) Licensing related to collaborations between semiconductor equipment manufacturers and other semiconductor manufacturing suppliers for the purpose of testing, evaluation, development and reducing the cost of ownership of semiconductor manufacturing equipment;

(7) Disclosures of a process or assembly design kit, complex design intellectual property, foundational design intellectual property, or other technical information provided by a funding recipient or its affiliates to its customer solely for the design of integrated circuits to be manufactured by the funding recipient; and

(8) Information that is generally available to the public or published (as such term is defined at 15 C.F.R. § 734.7).

To implement the changes set forth above, we recommend the following additions to §231.108 Joint research

(a) *Joint research* means any research and development activity as defined at 15 U.S.C. 638(e)(5) that is jointly undertaken by two or more persons, including any research and development activities undertaken as part of a joint venture, as defined at 15 U.S.C. 4301(a)(6).

(b) Notwithstanding paragraph (a) of this section, the following is not joint research:

(1) A standards-related activity (as such term is defined in 15 CFR Part 772);
(2) Research and development conducted exclusive between a funding recipient and its affiliates;

(3) Research, development, or engineering related to a manufacturing process for an existing product;

(4) Research, development, or engineering involving two or more persons in order to establish or apply a drawing, design, or related specification for a product to be purchased and sold between or among such persons;

(5) Warranty, service, and customer support performed by a funding recipient;

(6) Collaborations between semiconductor equipment manufacturers and other semiconductor manufacturing suppliers for the purpose of testing, evaluation, development and reducing the cost of ownership of semiconductor manufacturing equipment; and

(7) Information that is generally available to the public or published (as such term is defined at 15 C.F.R. § 734.7)

B. Improvements to the implementation of the technology clawback

1. Provide greater clarity on the phrase "relates to" national security

Both the CHIPS Act and the Proposed Rule prohibit joint research and technology licensing with a foreign entity of concern that "relates to" a technology or product that raises national security concerns. Congress used this broad language to ensure that technology relevant to national security would not be transferred to a foreign country of concern. The Proposed Rule provides no specific definition of the term "relates to," and relying on its common use definition, which is very broad, provides insufficient clarity for funding recipients or their affiliates to reasonably identify the activities in scope of the rule. We acknowledge that what "relates to" one of the technologies or products that raise national security concerns is difficult to define with precision, but without further clarity, companies will lack sufficient notice of prohibited activities.

The term "related to," in common use, means to be about or connected with something. In the context of the technology clawback, this means the Proposed Rule would prohibit joint research

or technology licensing activities "about or connected with" any technology or product that raises national security concerns. This would cover not only joint research or licensing of technology controlled for national security or regional stability reasons under 26 ECCNs in Category 3 of the EAR for export to the foreign entities of concern, but also of more general information, including well-known semiconductor concepts that are published and freely available to the general public, as well as concepts that are shared between mature stage products and technology and the more sensitive and advanced items described in the definition of "technology or product that raises national security concerns." The phrase "relates to" could also implicate joint research and technology licensing that would not conventionally be considered related to one of the technologies or products that raise national security concerns, but could indirectly have some relation due to shared information, components, or technology that are not specific to a specific technology or product.

2. Addition of a process to mitigate national security risks

The Proposed Rule should be revised to include a process to mitigate national security risks associated with the technology clawback, similar to §231.306 for the expansion clawback. While Congress did not expressly require a process to mitigate national security risks as part of the technology clawback, the inclusion of such a provision would be consistent with Congressional intent. First, 15 U.S.C. §4652(a)(5)(C)(ii) states that the Secretary may determine whether joint research or technology licensing effort with a foreign country of concern relates to a technology or product that raises national security concerns. Similarly, such a determination must be communicated to the covered entity before engaging in such joint research or technology licensing. Such an approach is important for business predictability, as reflected by SIA's comments on the mitigation of national security risks for the expansion clawback (I.F.).

Recommended addition of §231.124(c) Technology or product that raises national security concerns:

> (c) If the Secretary, in consultation with the Secretary of Defense and the Director of National Intelligence, determines that a funding recipient or its affiliate is planning to engage or has engaged in any joint research or technology licensing with a foreign entity of concern that relates to a technology or product that raises national security concerns that is in violation of § 231.203, the Secretary may seek to take measures in connection with the joint research or technology licensing to mitigate the risk to national security. Such measures may include the negotiation of an agreement with the funding recipient to mitigate the risk to national security in connection with the joint research or technology licensing. The Secretary also may decide to waive the recovery of funds. The Secretary may also negotiate in such an agreement with the funding recipient ways to mitigate the risk to national security in connection with joint research or technology licensing that has the potential to violate §231.203.

3. Limit the technology clawback to the term of the federal financial assistance award.

The CHIPS Act specifies that the technology clawback should be effective "during the applicable term with respect to the award" (15 U.S.C. § 4652(a)(5)(C)). Contrary to the express terms of the statute, the Proposed Rule requires the technology clawback to be included as part of the 10-year duration of the expansion clawback.

This discrepancy should be remedied by differentiating that there are two applicable terms, one for the expansion clawback and one for the technology clawback.

> Recommended change to §231.102 Applicable term
>
> (a) For ~~both~~ the prohibition on certain expansion transactions ~~and the prohibition on certain joint research or licensing transactions~~, the applicable term shall be the 10 years following the date of the award of Federal financial assistance, unless otherwise specified in the required agreement.
>
> (b) For the prohibition on certain joint research or licensing transactions, the applicable term shall be the duration of the award, unless otherwise specified in the required agreement.

4. Allow for reasonable continuation of pre-existing contracts or arrangements

The preamble to the Proposed Rule states:

> The Department recognizes that some funding recipients may have pre-existing contracts or other arrangements which commit them to joint research or technology licensing with foreign entities of concern that relate to a technology or product that raises national security concerns. CPO invites comments from interested parties on the extent and nature of these pre-existing arrangements, the ability of funding recipients to abandon them with or without penalty, and the feasibility and impact of exempting joint research or technology licensing done pursuant to an agreement which predates this rule. (88 Fed. Reg. at 17441).

We appreciate Commerce's recognition of pre-existing activities and the complexities associated with addressing these activities. To address this issue, the technology clawback should apply prospectively only and be triggered only by contracts or other arrangements, or applicable modifications to contracts or arrangements, entered into after the required agreement. This approach is consistent with the statutory language of the CHIPS and Science Act; 15 U.S.C. 4652(a)(5)(C) states that the clawback only becomes operative if national security concerns with specific joint research or a technology license are "communicated to the covered entity *before* engaging in such joint research or technology licensing" (emphasis added).

Applying the technology clawback retroactively, where a funding recipient entered into an agreement with a foreign entity of concern several years before the existence of the CHIPS Act, would add complexity associated with unwinding such arrangements. Moreover, Chinese counterparties presumably have already obtained any know-how regarding a potential technology of concern, and the coverage of pre-existing agreements merely places a potential funding recipient in legal and financial jeopardy.

In addition, the premature termination of joint research and technology agreements strips away the intellectual property protection mechanisms in the agreements and leaves a grant recipient even more exposed to intellectual property misappropriation. It would also be extremely difficult, and in some cases near impossible, for funding recipients to abandon many pre-existing license agreements. Contract law generally does not permit a party to void a contract or the licenses granted under the contract unless there is an applicable termination provision in the contract. It

is unlikely that there will be a provision that allows termination in the situation addressed by the proposed regulations. The funding recipient would have no leverage that would allow them to convince a foreign entity to renegotiate the terms of a pre-existing license.

Commerce should also consider the potentially widespread nature of pre-existing contracts, and accordingly, the potential for compliance burdens and confidentiality issues.

Rather than prohibiting existing, current, and ongoing arrangements, we suggest Commerce should require disclosure of general categories of applicable arrangements and require that the arrangement is not expanded or extended beyond its current terms. The Secretary, in consultation with the Secretary of Defense and the Director of National Intelligence, may then determine whether an extension or expansion of such arrangement raises national security concerns and provide an opportunity for funding recipients to mitigate such concerns.

5. Owned by, controlled by, or subject to the jurisdiction or direction of. (§231.112)

It is not clear from § 231.112(b)(1) if "located in the foreign country" modifies "resident of the foreign country" or modifies "citizen, national, or resident of foreign country." As a result, a funding recipient could be prohibited from sharing technology with all Chinese citizens in all parts of the world, which may be unintended.

Additionally, because of § 231.112, the definition of "Foreign Entity of Concern" in § 231.106(c) becomes overly broad. The effect of this is that the Proposed Rule unrealistically includes all Chinese citizens and companies "subject to the jurisdiction" of PRC to fall in the scope of "foreign entity of concern." Given the use of the term "foreign entity of concern" in the prohibition on certain joint research or technology licensing in §231.203, even very routine and necessary business activity could be blocked. This is an integral part of the day-to-day functioning of the industry. Licensing (including implied and other non-controversial low-level licensing) and joint assessment (i.e. research) of technical issues associated with customer applications pervades almost every aspect of dealings between semiconductor companies, their suppliers and customers. To forbid any such "licensing" or "joint research" with all Chinese citizens and companies, regardless of their connections to government-owned entities, creates a compliance burden that cannot be met and which is probably not intended. Additionally, Commerce should consider the effect on companies based in the U.S. and allied countries that are not funding recipients but that have subsidiaries or affiliates that are organized under the laws of a foreign country of concern or has its principal place of business in the foreign country of concern.

The proposed change below will address the aforementioned issues because it provides consistency by references to the same language pertaining to a foreign entity in §231.105(b)(2-3). SIA also encourages alignment with export controls with respect to restricted entities in order to set a reasonable, practical, and consistent scope for compliance on that issue within the Department's jurisdiction.

> Recommended change to §231.112(b)(1) Owned by, controlled by, or subject to the jurisdiction or direction of
>
> (1) The person acts as an agent, representative, or employee, or any person who acts in any other capacity, at the order, request, or under the direction or control, directly or indirectly, of a government of a foreign country ~~is a citizen, national, or resident of the foreign country located in the foreign country~~;

At a minimum, the definition should be amended to ensure that all citizens of a foreign country of concern located outside the foreign country of concern are not covered by the joint research and licensing prohibition. It is not clear from § 231.112(b)(1) if "located in the foreign country" modifies "resident of the foreign country" or modifies "citizen, national, or resident of foreign country." As a result, a funding recipient could be prohibited from sharing technology with all Chinese citizens in all parts of the world. For example, there may be Chinese doctoral or master's students at U.S. universities, or Chinese-American dual citizens employed by U.S. semiconductor companies, that are inadvertently subject to the restriction. The restriction should exclude persons located outside the foreign country of concern, unless §231.112(b-c) apply.

Alternative recommended modification to § 231.112(b)(1):

"The person is located in the foreign country and is a citizen, national, or resident of the foreign country or another foreign country of concern ~~located in the foreign country~~."

Additionally, while already implied, Commerce should confirm that affiliates of a funding recipient are not considered foreign entities of concern.

Recommended addition to the end of § 231.106 Foreign entity of concern.

(g) Notwithstanding paragraphs (a-f) of this section, the following is not a foreign entity of concern:

(1) The funding recipient and its affiliates; or

(2) An entity, as determined by the Secretary, in consultation with the Secretary of Defense and Director of National Intelligence.

III. Additional Topics

A. Semiconductors critical to national security (§231.120)

The definition of "semiconductors critical to national security" includes an expansive range of semiconductor categories. We request Commerce refine the definition to more narrowly target the universe of impacted technologies.

1. Compound Semiconductors & Wide/Ultra-wide bandgap semiconductors

While some compound semiconductor technologies are properly deemed as critical to national security under §231.120, including those already subject to export controls, other compound semiconductors are primarily used in commercial applications, including those intended for sale in renewable energy, energy storage, lighting, electric vehicle, power supplies for servers, or wireless infrastructure applications.

For example, certain compound semiconductor products are used in wireless infrastructure would be covered, including products supporting base stations. Many of these products and technologies are classified as EAR99 or subject to only Anti-Terrorism controls (e.g., 5A991) in the Export Administration (EAR) Regulations, meaning that they are not subject to any export licensing requirements to China as a general matter. Restricting core elements of wireless

infrastructure using technology with no export restrictions and are freely available in foreign countries of concern impacts companies seeking CHIPS incentives. It also creates inconsistencies and establishes conflicting requirements for those same items by defining them as "technology or product that raises national security concerns'' or "semiconductors critical to national security" when those same products are not subject to National Security controls in the EAR.

For example, SiC power semiconductors such as those used to invert Direct Current (DC) from a solar panel to Alternating Current (AC) for transmission over power lines, or to invert AC from the power lines to DC to charge an Electric Vehicle (EV) battery, or to invert the DC from the EV battery to an AC for the EV's traction motor, are commercial applications that further U.S. climate change mitigation goals, are EAR99 as a general matter and should not be considered a national security concern by inclusion in a broader compound or wideband gap semiconductor category.

2. Packaging fully depleted silicon on insulator (FD-SOI) semiconductors

While SIA recognizes Commerce's objective to limit the manufacturing and knowledge transfer as it relates to FD-SOI, SIA does not believe the same national security objectives are met with respect to the packaging of such technology. Packaging operations used for such devices are not appreciably different than that used for other types of semiconductors and thus should be excluded. However, advanced packaging of FD-SOI should remain covered.

Recommended change to §231.120(e) Semiconductors critical to national security

(e) fully depleted silicon on insulator (FD-SOI) semiconductors <u>other than with regard to semiconductor packaging operations with respect to such semiconductors of a 28-nanometer generation or older</u>;

3. Radiation-hardened by process (RHBP) semiconductors

The inclusion of "Radiation-hardened by process (RHBP) semiconductors" on the list of semiconductors critical to national security requires additional clarification and definition. As the semiconductor fabrication process technologies have advanced, the integrated circuits produced from the standard commercial process technology have become naturally more radiation resistant in certain respects and more susceptible to radiation effects in other respects. "Radiation-hardened by process" has traditionally meant that special steps were taken in the process technology to enhance the radiation resilience of the products, such as introducing different substrate materials.[16] Radiation hardening can also occur during design. Commerce should work with industry to clarify the coverage of this provision.

[16] Chinna, Rao & Chavan, Ameet. (2021). Review on Radiation Hardness Assurance by Design, Process and NextGen Devices. Journal of Physics: Conference Series. 1916. 012002. 10.1088/1742-6596/1916/1/012002. (*Available at* https://www.researchgate.net/publication/351937516_Review_on_Radiation_Hardness_Assurance_by_Design_Process_and_NextGen_Devices)

B. Affiliate (§231.101)

The definition of affiliate in §231.101 uses a 50 percent threshold. This is a departure from the reference in the statute to an 80 percent threshold (15 U.S.C. 4652(a)(6)(C)(iii)):

> For the purpose of applying the requirements in an agreement required under clause (i), a covered entity shall include the covered entity receiving financial assistance under this section, as well as any member of the covered entity's affiliated group under section 1504(a) of title 26, without regard to section 1504(b)(3) of title 26.

26 U.S.C. §1504(a) maintains an 80-percent voting and value test under 26 U.S.C. 1504(a)(1-2). The Department of Commerce should therefore revise the definition to align with Congressional intent.

> Recommended change to §231.101 Affiliate
>
> *Affiliate* means~~:~~ any member of the funding recipient's affiliated group under section 1504(a) of title 26, without regard to section 1504(b)(3) of title 26, under 15 U.S.C. 4652(a)(6)(C)(iii).
>
> ~~(a) Any subsidiary of the funding recipient, *i.e.*, any entity in which the funding recipient directly or indirectly holds at least 50 percent of the outstanding voting interest;~~
>
> ~~(b) Any parent entity of the funding recipient, *i.e.*, any entity that directly or indirectly holds at least 50 percent of the outstanding voting interest in the funding recipient; or~~
>
> ~~(c) Any entity in which the funding recipient's parent entity or parent entities directly or indirectly hold at least 50 percent of the outstanding voting interest.~~

C. Clarify intended application scope to exclude customers, clients, vendors, suppliers, and subcontractors

Commerce should add a declarative statement that clawbacks under the Proposed Rule are applied to the funding recipient and its affiliates, with clarifications sought above, but not to the subcontractors, customers, vendors, suppliers, or clients of the recipient and its affiliates. This is necessary to ensure clarity that recipients are not required to attempt to flow-down guardrails obligations to partners or clients that are not entities of concern.

IV. Publication of Frequently Asked Questions for Equipment and Materials Manufacturers

Given the unique nature of semiconductor equipment and materials manufacturers as compared to semiconductor manufacturers, many potential issues related to a Final Rule may simply not be capable of being addressed in a rule intended to regulate both sets of industries. As a result, we urge the Department to confirm that equipment and materials manufacturing are not considered "semiconductor manufacturing" for purposes of this Rule, as well as to consider the publication of FAQs or other guidance to clarify the application of this Rule as applied to equipment and materials manufacturers who may be funding recipients.

V. Technical corrections

A. Foreign entity of concern (§231.106)

There appears to be an error on the labeling of the subsections (b)-(e). This should read as subsections (e)-(h).

B. Scope (§231.201)

Insert "significant" to now read: "…for review by the Secretary of a significant transaction…"

C. Retention of Records (§231.204)

As proposed, the retention of records provision inadvertently requires record retention on all significant transactions, which, over the duration of the applicable term, with a threshold of $100,000 could number in the millions across all funding recipients. The provision also does not limit record retention to those significant transactions taking place in foreign countries of concern, instead requiring record retention of global significant transactions. This is an extraordinary, and likely unintended, compliance burden.

Instead, the retention of records provision should only apply to significant transactions involving the material expansion of semiconductor manufacturing capacity in a foreign country of concern. The provision should be limited in scope and to the same effect in line with the intention for record-keeping and for practical compliance effort. This will also be consistent with §231.301.

Recommended change to §231.204(a) Retention of records

(a) During the 10-year period beginning on the date of the Federal financial assistance award under 15 U.S.C. 4652 and for a period of seven years following any significant transaction involving the material expansion of semiconductor manufacturing capacity in a foreign country of concern, a funding recipient or its affiliate planning or engaging in ~~any~~ such significant transaction shall maintain records related to the significant transaction in a manner consistent with the recordkeeping practices used in their ordinary course of business for such transactions.

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SIA appreciates the opportunity to comment on this proposal and we look forward to continuing to work with Commerce in the development and implementation of these rules.