

**Comments of the  
Semiconductor Industry Association (SIA)  
on**

**Amendments to General Prohibition Three (Foreign-Produced Direct Product  
Rule) and the Entity List**

85 Fed. Reg. 29849 (May 19, 2020)

Docket Number: BIS 2020-0011, RIN 0694-AH99

Submitted on July 14, 2020

The Semiconductor Industry Association (SIA)<sup>1</sup> appreciates the opportunity to comment on the interim final rule amending General Prohibition 3 (the “Foreign Direct Product Rule”) of the Export Administration Regulations (EAR) and the EAR’s Entity List.

The U.S. semiconductor industry is keenly aware of the Administration’s national security concerns regarding China. The industry is also focused on its need to maintain open access to global markets for the sale of non-sensitive, commercial products, including growth markets such as China, to compete globally and achieve the scale needed to invest at high levels to maintain technology leadership. The U.S. domestic market accounts for less than 20 percent of global semiconductor demand. Over 80 percent of revenue for U.S. semiconductor companies come from sales to foreign markets, making access to global markets critical to our industry’s success. Semiconductors are America’s fifth largest export. Foreign markets and thriving global supply chains are an important part of a virtuous cycle, which provides for global industry leadership, scale, and reinvestment into global leadership.

In order to advance U.S. national security and economic security objectives with respect to controls on the export of semiconductor-related items, SIA has consistently urged the Commerce Department to abide by the standards in the Export Control Reform Act of 2018 (ECRA),<sup>2</sup> which contains the following core policy statements:

---

<sup>1</sup> SIA is the trade association representing leading U.S. companies engaged in the research, design, and manufacture of semiconductors. Semiconductors are the fundamental enabling technology of modern electronics that has transformed virtually all aspects of our economy, ranging from information technology, telecommunications, health care, transportation, energy, and national defense. Innovations in semiconductor design and manufacturing have resulted in increasingly smaller, more powerful, less expensive, and more energy efficient semiconductors, which has a “multiplier effect” that drives advancements throughout other sectors of the economy, resulting in increased growth, jobs, and productivity. More information about SIA and the semiconductor industry is available at [www.semiconductors.org](http://www.semiconductors.org).

<sup>2</sup> See SIA comments on “Advanced Notice of Proposed Rulemaking regarding Review of Controls for Certain Emerging Technologies,” Docket # 180712626-8840-01 (Jan. 10, 2019) (available at

- “Export controls should be coordinated with the multilateral export control regimes. Export controls that are multilateral are most effective, and should be tailored to focus on those core technologies and other items that are capable of being used to pose a serious national security threat to the United States and its allies.”
- “Export controls applied unilaterally to items widely available from foreign sources generally are less effective in preventing end-users from acquiring those items.”
- “Application of unilateral export controls should be limited for purposes of protecting specific United States national security and foreign policy interests.”
- Export controls should “maintain the leadership of the United States in science, engineering, technology research and development, manufacturing, and foundational technology that is essential to innovation.”

Export control regulations failing to adhere to these principles are likely to be ineffective in achieving national security goals, while at the same time harming U.S. competitiveness and our industrial base.

With these fundamental policy objectives in mind, we offer the following:

**1. Narrow Approach in Rule is Preferable to Broader Approaches Under Consideration**

SIA believes the attempt to narrowly tailor the revisions to the Foreign Direct Product Rule is preferable to broader approaches previously considered. Published reports indicated BIS was considering far broader approaches that would have significantly harmed the U.S. semiconductor industry and resulted in more disruption to the global semiconductor supply chain. For example, BIS was reportedly contemplating an expansion of the EAR’s *de minimis* rule so otherwise non-sensitive, uncontrolled commercial foreign-made items containing 10% or more U.S.-origin content would be subject to the EAR, even if the content was uncontrolled and otherwise non-sensitive. Another amendment apparently under consideration was to change the EAR’s Foreign Direct Product Rule so foreign-made items made from U.S.-origin technology that was not controlled for national security reasons would also be subject to the EAR. We opposed such broad restrictions, and thus take note of the BIS decision to adopt a narrower approach in this rule.

Such broad amendments would have damaged the U.S. and global semiconductor

---

<https://www.semiconductors.org/wp-content/uploads/2019/01/BIS-ANPRM-on-emerging-technology-jan-10.pdf>).

industry supply chains without having a material impact on the designated entities given the widespread foreign availability of the uncontrolled commercial items at issue. According to a report from the Boston Consulting Group (BCG), more than 73% of American chips can be substituted with readily available foreign alternatives.<sup>3</sup> The changes as reported would have limited or eliminated -- as a legal and as a practical matter given market reactions -- the ability of the semiconductor industry to sell into China, one of our largest and growing markets, accounting for nearly one-third of sales. The changes would have reduced revenues of the industry in the U.S., which in turn would reduce our ability to invest in research necessary to maintain market leadership. The semiconductor industry in the U.S. invests, on average, approximately 20 percent of revenue in research and development, among the highest percentage of any industry, and this research investment provides the technological edge necessary to maintain global market leadership. According to the BCG report, overly broad restrictions would reduce U.S. revenue by 37 percent and lead to a corresponding drop in U.S. market share of 18 percent, with a corresponding decline in R&D investments.

## **2. SIA Comments on the Rule**

SIA has the following comments, suggestions, and questions about the interim final rule.

### **a. The Apparent Intent and Scope of the Rule Appear to be Misaligned**

The text of the new rule controls non-sensitive, wholly foreign-origin commercial items that are not otherwise export controlled if they are known to be destined to a designated entity when the items are:

- “produced or developed” by a designated entity, **and** are the direct product of specific types of electronics (including semiconductor), computer, and telecommunications technology or software subject to the EAR (paragraph (a)); **or**
- produced from equipment that is the direct product of specific types of U.S.-origin electronics (including semiconductor), computer, and telecommunications technology or software, **and** the “direct product” of software or technology produced or developed by a designated entity (paragraph (b)).<sup>4</sup>

We believe the rule as written may be misaligned with its purpose because the rule’s preamble, the Department of Commerce press release,<sup>5</sup> public statements, and letters

---

<sup>3</sup> <https://www.bcg.com/en-us/publications/2020/restricting-trade-with-china-could-end-united-states-semiconductor-leadership.aspx>

<sup>4</sup> 85 Fed. Reg. 29849, 29863, footnote 1.

<sup>5</sup> <https://www.commerce.gov/news/press-releases/2020/05/commerce-addresses-huaweis-efforts-undermine-entity-list-restricts>

BIS has sent to companies about the rule describe the scope of the rule far more broadly than the text of the rule.

We therefore ask BIS to describe more clearly these apparent disconnects between the rule's text and Commerce's statements of intent either through guidance or an amendment. Such a clarification will help us comment further on the positive and negative impacts of the rule on industry in the U.S. It will also help our member companies prepare any required license applications and bring more certainty and clarity to such significant and precedent-setting rules, which are impacting the business operations of the global semiconductor supply chain. Without knowing the precise scope of the new rule, it is difficult for our members to know which types of foreign-produced items are intended to be within the scope of the rule and whether license applications for such items would likely be approved. Ultimately, companies need to rely on clear and concise legal and regulatory definitions, not vague and often not uniform policy statements to plan and operate their businesses.

As Commerce works through such issues, we respectfully request any changes be done in a transparent process through a proposed rule that leverages inputs from all relevant parties. We believe such transparency will help ensure our country's national security objectives are achieved with the least possible economic harm to the semiconductor industry in the United States.

The following are three specific examples of this apparent disconnect.

i. Comment on Paragraph (a)

For an item to be subject to the new rule under paragraph (a), it must have been "produced or developed" by a designated entity. However, for semiconductors that have already gone through the manufacturing development stage known as "tape-out" and are currently in production, little or no design or manufacturing data is required to be sent back to the designated entity. The Commerce Department, however, appears to believe the rule would often prohibit such interaction even though the rule does not appear to do so.

ii. Comment on Paragraph (b)

For an item to be subject to the paragraph (b) portion of the new rule, it must be, at a minimum, the "direct product" of software or technology produced or developed by a designated entity. The EAR defines the term "direct product" to mean "**the immediate** product (including processes and services) produced directly by the use of technology or software."<sup>6</sup> However, none of Commerce's descriptions outside of the written rule of paragraph (b) state that its controls are limited to items that are the "direct product," as defined in the EAR, of technology or software produced or developed by a designated entity (assuming the other elements of the paragraph are met). The preamble states

---

<sup>6</sup> 15 C.F.R. § 734.3(a)(4).

that such items are controlled if they were merely produced “**from**” software or technology produced or developed by a designated entity. The Commerce Department press release states that such items are controlled “when **produced from design specifications** of (the designated entity).” The letter BIS has sent to multiple companies states that paragraph (b) applies when “the intended integrated circuit fabricated by the foundry **resulting from** the HiSilicon design” is produced by specified U.S. equipment. All such word choices suggest that Commerce’s policy goal behind paragraph (b) was that it apply to far more than items shipped to a designated entity that are the “direct” and “immediate” product of a designated entities technology or software.

iii. Comment on “Destined To” Element of the Rule

For an item to be subject to the EAR under the new rule, there must, at a minimum, be “knowledge” it is destined to a designated entity. However, in today’s modern electronics supply-chain that is highly diversified and reliant upon a heavily outsourced business model, it is normal for a chip or wafer that is the product of a designated entity to never be shipped back to such entity before sale in the commercial market. For example, a finished wafer from a foundry can then be shipped to an outsourced semiconductor assembly and test (OSAT) firm that packages the final die and ships it to an electronics contract manufacturer (CM) for assembly into a finished electronics product, such as a smartphone or base station. The finished product is then shipped directly from the CM into sales channels, without the designer of the chip ever taking repossession of the chip throughout this process. Commerce’s comments about the rule, however, suggest the rule applies to the whole of the specified designated entities contract manufacturing supply chain.

b. The Rule Creates an Almost Impossible Compliance Burden for those Not Directly Involved in the Development or Production of Affected Items

With the exception of semiconductor foundries, for parties exporting foreign-made items that are not otherwise subject to the EAR, it is extraordinarily difficult, if not impossible, to determine the origin status of the software or hardware that was used to produce the item they are exporting, particularly due to the typical multi-step supply chains for semiconductor devices. We, therefore, respectfully request BIS develop an alternative way of determining the jurisdictional status of the foreign-made items it wants to control that does not require foreign companies to have to determine the complex jurisdictional status of the tools used several layers back in the production process. An amendment or a clarification that would address this issue would be one stating items not wholly or primarily produced or developed by a designated entity be excluded from the definition. Another solution would be for BIS to state items that merely have input as to their requirements or specifications from designated entities are not items “developed” by such designated entity.

c. The Scope of the “Produced or Developed” Control in Paragraph

(a) is Unclear

For an item to become subject to the EAR under the new paragraph (a), it must have been “produced or developed” by a designated entity. For an item to be subject to jurisdiction under paragraph (b), it must be the “direct product” of software or technology “produced or developed” by a designated entity. In the semiconductor industry, most items are rarely completely produced or developed by one entity. There is a significant amount of joint development and technology intermingling that occurs to produce or develop an item. In applying other aspects of EAR jurisdiction over foreign products, BIS disregards inputs that fall below specified *de minimis* thresholds. Application of similar principles to determining whether an item is subject to the EAR would be appropriate under these circumstances, as well. For example, while a chip may be the product of a company, it may have integrated third-party IP from multiple sources, sometimes from more than a dozen third-party IP providers. This makes it unclear as to who actually designed or developed the chip. We, therefore, respectfully request BIS to quantify or otherwise describe in more detail how an item could be subject to the EAR under paragraph (a) if it is only partially produced or developed by a designated entity.

d. The Application of “Direct Product” in Paragraph (b) is Unclear

For an item to become subject to the EAR under paragraph (b), it must, at a minimum, be the “direct product” of technology or software produced or developed by one of the designated entities. As you know, the EAR defines “direct product” as meaning the “direct **and immediate**” product of technology or software (emphasis added). Most of the types of items that would be shipped to a designated entity will have been made with the use of technology produced or developed by other companies in addition to that which would have been developed or produced by a designated entity, but it is unclear if that product is the immediate result of such listed technology in the rule. For example, foundries use their own proprietary manufacturing process technology (which also includes third-party IP inputs) to produce wafers. Outsourced semiconductor assembly and test (OSATs) operators use their own proprietary technology to package dies. Original equipment manufacturers use their own technology to produce the final product that is shipped to the customer.

More specifically, foundries may directly take a chip design file and then use that design to “write” (produce) a “mask-layout” which is used as a template to imprint the chip design onto the wafer in the photolithography process of semiconductor manufacturing. Beyond that step, dozens of additional manufacturing steps and inputs take place that have little or nothing to do with the designated entity’s chip design or other technology. In this case, it seems the only product that is the direct and immediate result of a designated entities’ technology is the mask-layout, arguably not the complete or finished wafer. The examples cited by BIS and other officials, however, suggest that any item shipped to a designated entity that is the *indirect* product (e.g., a finished wafer or packaged die) of such designated entity technology or software (such as a GDSII file) can be subject to the EAR. We ask BIS to explain how items (e.g., a wafer or a packaged die) produced with *intermediate*, non-designated entity technology can still

nonetheless be the “direct product” of technology produced or developed by the designated entity. Or, if such items are not the “direct product” of designated entity technology or software, we ask BIS to state such a conclusion with certainty.

e. The Term “Essential” in Paragraph (b) Requires a Definition

We ask BIS for guidance on how “essential” should be defined in paragraph (b). A common dictionary definition is “absolutely necessary” or “extremely important.” Does BIS consider such definitions to apply for example to test equipment to test items after they have already been produced? How would such a definition apply to less important tools within the hundreds of tools that are used to produce a wafer? Because some tools in a foundry are more important than others, does the application of a dictionary definition mean the less important tools cannot be “essential?” Basically, we ask BIS for more detailed guidance on which types of U.S.-origin equipment and other tools and other equipment will taint a foreign-made item under the new rule.

f. An Unintended Consequence of the New Rule is the Creation of an Even More Unlevel Playing Field for U.S. Companies, which also Raises Concerns regarding its Extraterritoriality

The new rule applies only to items that were developed or produced by a designated entity, or that are the direct product of software or technology developed or produced by a designated entity. This means that entities that develop and produce their own items for sale not based on the designated entities’ chip designs outside the United States are not affected by the new rule. Existing Entity List restrictions have already created incentives for the designated entity to design out products that it was sourcing from U.S. companies. The new restrictions, apparently aimed at products a designated entity designs itself, create further incentives for such entity to purchase more items from non-U.S. companies – companies that are competitors with companies within the United States.

Some companies are vertically integrated, meaning they are “captive” by designing their own chips for use in their own electronics products. Other electronics firms purchase “merchant” or third-party alternatives to the chips they would have otherwise designed themselves. This means the new rule has created a structural incentive for designated entities to fund the development and production of new merchant items (not a chip designed by the designated entity) by competitors of U.S. companies. This income, which is not available to U.S. companies, will further fund the R&D of the foreign companies, which increases their ability to out-compete the U.S. companies in critical technologies, such as 5G. If the goal of the new rule is to inhibit a designated entity from designing its own semiconductors for use in the global telecommunications infrastructure or other contexts, then BIS should support the substitution of U.S.-origin items, based on trusted designs, in their place. In light of this, we respectfully request BIS to confirm it will grant licenses to companies in the U.S. to export otherwise non-sensitive items (such as 3x991, 5x992, and EAR99 items) for which there is clear foreign availability. Otherwise, the U.S. companies will lose out to their foreign competitors and the designated entity will be able to get exactly the same components it

otherwise would have produced itself.

g. BIS Should Work to Make the New Control Multilateral

As indicated above, unilateral controls in this case: (i) hurt companies in the United States, (ii) help their foreign competitors, and (iii) have little impact on the target foreign company. To make the control more effective and to reduce the unilateral harm to U.S. industry, we respectfully request BIS to work with its close allies to impose some sort of control that will make the effort more multilateral. We realize other countries do not have entity list-like controls, but there are other ways BIS could convince its allies to take action to make the control more effective. We also ask BIS to identify what such efforts are and begin working with the allies to accomplish them.

h. The Rule Discourages the Foreign Purchase and Use of U.S.-Origin Semiconductor Development Software and Production Tools

The inclusion of jurisdiction over wholly foreign-made items outside the United States under the rule hinges on the use outside the United States of certain types of U.S.-origin software to design a chip, such as Electronic Design Automation software, and certain types of U.S.-origin semiconductor production tools (or tools produced from U.S.-origin technology), such as etch, deposition, and metrology tools to manufacture a wafer. The United States indeed maintains a significant leadership position in EDA software and in some segments of semiconductor manufacturing tools. Thus, short-term alternatives will be challenging to source. In the long-term, however, the rule almost certainly creates a disincentive for manufacturers of semiconductors from using U.S.-origin items. That is, the solution for foreign buyers of semiconductor software and production tools wanting to manufacture foreign-made items outside the United States without the uncertainty of such actual or potential controls is to simply begin purchasing existing substitutable foreign-made products. If they do not exist, then their solution is to begin investing in the research and development of foreign-made alternatives. As noted above, United States companies are the world leaders in many of these technologies. This means that the new rule creates a structural incentive for foreign companies to invest in suppliers outside the United States, which: (i) forces the offshoring of U.S. supply chains to respond to market-demand for non U.S.-origin technology, and (ii) deprives the companies in the United States of income to fund their R&D necessary to out-innovate and stay ahead of their foreign competition. We, therefore, respectfully request BIS to consider ways to level the playing field by collaborating with like-minded allies to implement the rule on a multilateral basis. If, after extensive efforts, such a goal is not achieved, we ask BIS to consider subjecting the foreign-made items it would like to EAR controls so as not to disadvantage those that supply comparable items made in the United States.

i. BIS Should Issue Proposals for Comment in Most Rulemakings

BIS issued the final rule without first publishing a proposed rule and providing industry and other stakeholders with an opportunity to provide comment. SIA believes this



process limited the opportunity for engagement by industry experts, which could have assisted BIS in making the rule more effective, avoiding unintended consequences, and minimizing the apparent disconnect between the rule's text and agency's public statements. SIA, therefore, respectfully urges BIS to return to a regular order, particularly for regulatory changes that are considered "economically significant" and that pertain to complex industrial supply chains and advanced commercial technologies. While we understand this rule was labeled with an emergency/national security designation that allows the Administration to skip a regular, formalized, iterative process, we encourage BIS to propose rules publicly and request formal comment on the proposal from industry and stakeholders. The semiconductor industry understands and supports the need to strengthen U.S. national security and foreign policy goals. Our participation in an iterative process only enhances national security considerations.

j. Any Changes to "Fix" or "Interpret" the New Direct Product Rule Should not have an Impact on Unrelated Parts of the EAR.

SIA is aware of reports indicating there may be gaps, or the perception of gaps, in the new rule. To the extent BIS decides to address any actual or apparent gaps by amending, through a regulation change or a novel interpretation, the definition of "direct product," we urge BIS to limit the impact of such changes to the new Foreign Direct Product Rule in footnote 1 to the Entity List. Any change to the long-established and clear definition of "direct product" will have significant and detrimental unintended impacts on U.S. companies because it has been for decades the basis for many licensing, compliance, and business decisions in areas unrelated to the topic at issue.

+ + +

SIA appreciates the opportunity to submit these comments. Please contact Erik Pederson at [epederson@semiconductors.org](mailto:epederson@semiconductors.org) if you request any additional information relating to these comments.

Uploaded to: <https://www.regulations.gov/comment?D=BIS-2020-0011-0001>  
Sent via email to: [ECDOEXS@bis.doc.gov](mailto:ECDOEXS@bis.doc.gov)