SEMICONDUCTOR INDUSTRY ASSOCIATION

Semiconductors & the Future of the Harmonized System

Perspectives from the U.S. Semiconductor Industry

EXECUTIVE SUMMARY

Semiconductors – the tiny chips that enable modern technologies – account for $1.56 trillion in annual global trade. Possessing one of the most globally complex supply chains of any industry, a typical semiconductor will cross international borders four or more times from start to finish. Given the complex and global nature of our industry, harmonized rules of trade and uniform implementation are vital to ensuring semiconductors can cross borders free, fairly and efficiently. The Harmonized System (HS) has played an important role in this regard, greatly lowering barriers between parties in the semiconductor supply chain. As the WCO considers the "Future Direction of the HS," the U.S. semiconductor industry would like to offer the following recommendations as it relates to semiconductor classification:

RECOMMENDATIONS

I. **Maintain the Existing Structure of Semiconductor Headings 8541 and 8542**
SIA believes that the current structure of the HS definition for semiconductors has been largely beneficial in terms of classifying semiconductors based on their essential character rather than by function. This structure should remain intact to avoid unintended costs and consequences.

II. **Enhance Alignment between HS and Trade Agreements**
The current HS structure underpins every global free trade agreement, including multilateral tariff agreements like the WTO Information Technology Agreement. While tariffs theoretically follow the product, there have been real-world cases in which countries argue that tariff commitments no longer apply following significant HS amendments. This negative impact could be mitigated by increasing coordination between the WCO and WTO in instances when the WCO is considering significant changes to ICT product headings, and when the WTO is engaged in tariff negotiations.

III. **Maintain "Precedence Provision" in Chapter 85 Legal Text**
Whenever semiconductor HS amendments are contemplated, it is critical that the "precedence provision" in Chapter 85 Note 9(b) be maintained. Because of the ubiquity of semiconductors- they are found in virtually every product that uses electricity- it is important that semiconductors are classified based on their essential character, and not as "part" of other products according to their function. The "precedence" provision has greatly simplified classification and reduced administrative and compliance problems.

IV. Enforce Uniform Interpretation and Classification of Semiconductors Across All Jurisdictions

There are a handful of situations in which certain customs jurisdictions interpret the semiconductor definitions differently, leading to non-uniform classification of the same good in different markets. Given the geographically-limited and narrow product scope of these classification discrepancies, SIA recommends the following tailored solutions to promote predictable and consistent treatment for semiconductors:

- Greater enforcement of "precedence" clause in Chapter 85 Note 9(b) to help ensure that all semiconductor products are classified under 8541 and 8542;[1]
- Increase access to and applicability of Explanatory Notes (ENs); and
- Pursue narrow, iterative updates to the HS to ensure the legal text covers new and advanced products.

V. Shorten Review Cycles for Highly Innovative Industry Sectors

Semiconductors are one of the most innovative industries in the world, and semiconductor product advances frequently outpace the HS definitions. With semiconductors now pushing against the limits of physics, we will likely continue to see major technological disruptions that will require changes to the HS faster than the current 5-year review cycle. We recommend:

- Quicker amendments to definitions if problems in daily applications arise (e.g. edits to notes to chapter 85)
- Using "fast-track" procedures for minor HS amendments in between review cycles in exceptional circumstances.

VI. Provide More Opportunities for Private Sector Engagement

A formalized mechanism for private sector engagement with the WCO would help ensure that the HS stays up-to-date and aligned with technological advances and changing trading patterns.

[1] Chapter 85 Note 9(b): **"***For the classification of the articles defined in this Note, headings 85.41 and 85.42 shall take precedence over any other heading in the Nomenclature, except in the case of heading 85.23, which might cover them by reference to, in particular, their function."*

SEMICONDUCTOR INDUSTRY ASSOCIATION

Perspectives from the U.S. Semiconductor Industry on the Future of the WCO Harmonized System

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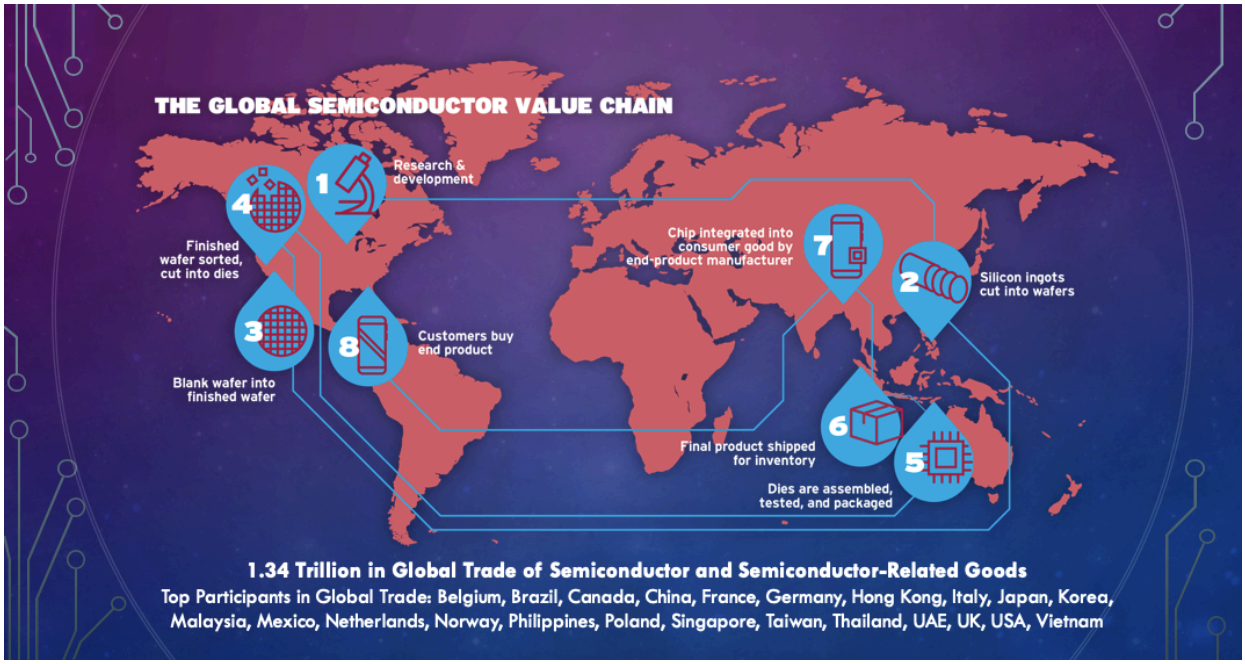
The Semiconductor Industry Association (SIA) is the voice of the U.S. semiconductor industry, representing companies that account for 95% of semiconductor production in the United States. Semiconductors – microchips that enable modern technologies – make the trillion-dollar global electronics industry possible. U.S. headquartered semiconductor companies accounted for nearly half of the $469 billion global semiconductor market in 2018. SIA works with Congress, the Administration and other key government and industry stakeholders to encourage policies and regulations that fuel innovation, propel business and drive international competition. Learn more at www.semiconductors.org or email dkeller@semiconductors.org

Background

Semiconductors – the tiny chips that enable modern technologies – represent a significant amount of global trade flows. Last year, more than 1 trillion individual semiconductors were sold, [2] accounting for approximately $1.56 trillion in annual global trade in 2017.[3] Semiconductors have one of the most globally complex supply chains of any industry, with around 30 countries comprising the leading players in global trade of semiconductors and semiconductor-related goods. From an unfinished wafer to the final packaged die that is integrated into an end-product, a typical semiconductor crosses international borders four or



[2] https://www.semiconductors.org/more-than-1-trillion-semiconductors-sold-annually-for-the-first-time-ever-in-2018/

[3] UN Comtrade Data, 2017

more times. Semiconductors are the largest category of traded products covered by the Information Technology Agreement (ITA), representing 32% of exports of all ITA-covered products.[4] As semiconductors become more integrated into a broader swath of end applications, including AI, IoT and driverless vehicles, demand for semiconductors will only continue to grow.

Given the volume and complexity of global semiconductor trade, it is critically important that semiconductors be able to cross borders freely, fairly, and efficiently. This is best achieved when the rules of trade are uniformly implemented. Harmonized rules and uniform interpretation and enforcement across jurisdictions reduce the administrative burden and compliance efforts in different regions/countries and lower the barriers between parties in a supply chain.

The Harmonized System (HS) has played a vital role in this regard. While the HS is admittedly a complex instrument, its use as a global language for identifying and classifying traded goods has proven durable and invaluable. Though frequently outpaced by advances in semiconductor technology, the HS definitions for semiconductors have generally served the industry well. While updates can and should be made to better and more quickly account for the continued evolution of semiconductor technology, the U.S. semiconductor industry does not support a revision of the current HS structure and supporting nomenclature for semiconductors at this time. As the WCO considers the "Future of Direction of the HS," SIA would like to offer six recommendations related to semiconductor classification:

I. Maintain the Existing Structure of Semiconductor Headings 8541 and 8542

Most semiconductors are classified under HS headings 8541 or 8542, with 8541 subdivided into 8 categories and 8542 subdivided into 5 categories at the 6-digit subheading level. Since the adoption of the HS in 1989, the chapter notes and legal text for 8541 and 8542 have been amended multiple times to account for advances in semiconductor technology. In 2007, the Chapter 85 notes were updated to include "multichip integrated circuits" (also known as multi-chip packages, or MCPs) in the definition of semiconductors under HS heading 8542, and in 2017, the chapter notes were similarly amended to include a definition for "multi-component integrated circuits (MCOs)". Most recently, in March 2019, the WCO Harmonized System Committee approved an amendment to include "semiconductor-based transducers" in the 2022 update.

These updates to headings 8541 and 8542 have been hugely beneficial to the global semiconductor industry, both in terms of classifying semiconductors based on their essential character rather than by function, as well as in helping to clarify the scope and coverage of tariff commitments under trade agreements such as the WTO Information Technology

[4] "20 Years of the Information Technology Agreement." World Trade Organization. https://www.wto.org/english/res_e/booksp_e/ita20years_2017_full_e.pdf

Agreement (ITA). As such, the U.S. semiconductor industry believes that the current structure of the HS definition for semiconductors should remain intact to avoid unintended costs and consequences.

II. Enhance Alignment between HS and Trade Agreements

The HS is integral to the system of international agreements on tariffs. The current HS structure underpins every global free trade agreement, including multilateral tariff agreements like the ITA. While tariffs theoretically follow the product, there have been real-world cases in which countries have argued that tariff commitments no longer apply to products classified in certain HS headings following significant HS amendments. Such situations have been the subject of dispute settlement cases at the WTO. As such, SIA recommends retaining the current semiconductor HS structure of 8541/8542 in light of the negative consequences a structural change could have on existing tariff agreements.

While the WCO positions itself as tariff-blind in deliberations regarding changes to the HS nomenclature, the reality is that the HS and tariff agreements are inextricably linked. The WTO is the macro-rule maker for the global trading system, but the WCO implements the nomenclature which governs how the system works. They are two arms of the same system. Unfortunately, the existing disconnect between the WCO and WTO increases the possibility for the terms of trade for certain products to be negatively impacted when an HS amendment is implemented by countries around the world. This possibility, and the impending negative impacts or distortions to trading patterns, could be mitigated by increasing coordination between the WCO and the WTO. Specifically, when the WCO is contemplating significant changes to ICT or other product headings, it is advisable to involve the WTO Secretariat directly in such deliberations to understand what the impact might be on tariff concessions in trade agreements. Similarly, when the WTO is engaged in negotiations on tariff agreements, there should be a formal mechanism for interaction and engagement with the WCO. This could help to alleviate implementation issues. We note that the definition of MCOs was simultaneously negotiated in the WTO and the WCO, but the process would have been much smoother and implementation issues that arose later might have been flagged and resolved earlier with a formal coordination mechanism. Finally, while not in the purview of the WCO, it would be helpful to both traders and governments if the WTO Members' Schedules of Concessions were updated more expeditiously such that they reflect the latest HS nomenclature.

III. Maintain "Precedence Provision" in Chapter 85 Legal Text

Whenever semiconductor HS amendments are contemplated, it is critical that the "precedence provision" in Chapter 85 Note 9(b) be maintained. This provision states: **"***For the classification of the articles defined in this Note, headings 85.41 and 85.42 shall take precedence over any other heading in the Nomenclature, except in the case of heading 85.23, which might cover them by reference to, in particular, their function."*

Essentially, this provision is intended to ensure that semiconductors are classified based on their essential character, and not as "parts" of other products or according to their function. Because of the ubiquity of semiconductors – they are found in virtually every product that uses electricity – this provision is vital. Semiconductor products are the building blocks of the information economy and are instrumental in emerging fields such as artificial intelligence, autonomous vehicles and 5G networks. Semiconductors provide the brains in the servers and data centers that power the digital infrastructure of the United States. A single semiconductor chip could be used in multiple applications – for example, a chip for a computer power adapter could also be used in a power adaptor for a game console, or for one of many "Internet of Things" devices. Oftentimes, the ultimate end use of a semiconductor chip may not be known at the time of shipment. Prior to the HS 2017, MCOs did not strictly meet the customs definition of for semiconductors in HS heading 8542. As a result, many customs jurisdictions classified MCOs according to their function rather than as a semiconductor. An internal SIA analysis of MCOs identified 67 potential separate headings[5] where MCOs could have been, and often were, classified before 2017 . The HS 2017 amendment which incorporated the definition of MCOs into the HS definition of semiconductors under heading 8542 was therefore incredibly significant, and helped to resolve differential classification, and differential tariff treatment, of the same chips across customs jurisdictions.

Because of the ubiquity of semiconductors, this precedence provision in Note 9(b) has greatly simplified classification and reduced potential administrative and compliance problems, consistent with the objectives of the Trade Facilitation Agreement (TFA). As such, whatever future semiconductor amendments may be contemplated, they should not jeopardize or undermine this critical provision.

IV. Enforce Uniform Interpretation and Classification of Semiconductors Across All Jurisdictions

Despite the benefits of past HS amendments to semiconductor headings 8541 and 8542, there are still situations in which certain jurisdictions interpret the customs definitions differently, leading to non-uniform classification of the same good in different markets. In most cases, it is only a handful of customs jurisdictions that have typically classified semiconductor products differently from that of other regions.[6] Given the geographically-limited and narrow product scope of existing classification discrepancies, SIA believes that potential solutions should be narrowly tailored. SIA does not believe that restructuring the semiconductor

[5] Prior to the HS2017 update, possible headings under which MCOs could be classified include: 8409.91, 8415.90, 8418.99, 8450.90, 8473.10, 8473.21, 8473.29, 8473.30, 8473.40, 8473.50, 8501.10, 8504.40, 8504.90, 8508.11, 8508.19, 8508.60, 8508.70, 8509.40, 8509.80, 8509.90, 8516.90, 8517.62, 8517.70, 8518.10, 8522.90, 8523.52, 8525.80, 8528.71, 8529.10, 8529.90, 8535.90, 8536.50, 8536.90, 8537.10, 8543.70, 8543.90, 8548.90, 8708.30, 8708.94, 8708.95, 9025.11, 9025.19, 9025.80, 9025.90, 9026.10, 9026.20, 9026.80, 9026.90, 9027.10, 9027.20, 9027.30, 9027.50, 9027.80, 9027.90, 9030.33, 9030.89, 9030.90, 9031.80, 9031.90, 9032.10, 9032.20, 9032.81, 9032.89, 9032.90, 9033.00, 9504.30, 9504.50.

[6] World Semiconductor Council, "Study of Relevant HS Subheadings, Cases of Different Classifications of Identical Products, and Merits of Harmonization and Simplification." Updated February 2016.

definition is warranted, as such a step would be out of proportion to challenges that some industry players have encountered. Instead, SIA recommends the following in order to promote predictable and consistent customs treatment for semiconductors:

1) Greater enforcement of "precedence" clause in Chapter 85 Note 9(b): As described above, not all customs authorities give appropriate emphasis to this provision, leading to classification inconsistencies. Greater emphasis should be placed on uniform application of this precedence clause to ensure all semiconductor products are classified under 8541 and 8542.
2) Increase access to and applicability of Explanatory Notes (ENs): The ENs to the HS are not legally binding, but they are important in guiding customs administrations to properly implement legal text. However, some jurisdictions do not consider, and effectively ignore, EN language when making classification decisions. This undermines the purpose of the ENs and invalidates the administration of the rules. In addition to greater enforcement of the legal text, the applicability of ENs should have more legal status. The ENs should also be made available to the public for free so that all traders have ready access to them.
3) Pursue narrow product amendments: Continue narrow, iterative updates to the HS to ensure the legal text covers new and advanced products.

V. Shorten Review Cycles for Highly Innovative Industry Sectors

Semiconductors are one of the most innovative industries in the world. For the past 50 years, advancements in semiconductor technology have been measured by "Moore's Law" which posits that overall processing power of a chip will double roughly every 18 to 24 months. The industry continues to follow Moore's Law to levels once unimaginable via breakthroughs in material science, photonics, engineering, and design. These technological advancements and the new semiconductor applications they generate can be described by three general megatrends: 1) miniaturization of ICs and similar components 2) diversification of components combined into one package; and 3) integration of previously independent functions into one device. As a result, a diverse range of products – incorporating a combination of ICs and discrete components- has been emerging as an "integrated circuit" configuration. The addition of MCOs to the HS in 2017 is a key example.

A key criticism of the current HS is that it lags far behind technological innovation. Due to the five-year HS review cycle, there is always a gap between current semiconductor products on the market, and technologies reflected in the HS definition. New, advanced products can fall out of the scope of headings 8541 and 8542, which can result in classification according to function. This was the case with MCOs before the 2017 HS update, as described above. As semiconductor technology is now pushing against the limits of physics, we will likely continue to see major technological disruptions that will require changes to the HS. However, rather than

pursuing a simplified text, we recommend that the WCO consider alternatives to keep the HS more up to date with technological innovation. Such options include:

1. Quick amendments to definitions if problems in daily applications arise (e.g. edits to notes to chapter 85)
2. Using "fast-track" procedures for minor HS amendments in-between review cycles in exceptional circumstances

VI. Provide More Opportunities for Private Sector Engagement

The semiconductor industry played a critical role in crafting the technical definitions of the MCP, MCO, and "Semiconductor-Based Transducers" amendments for inclusion in the HS. However, the industry was unable to offer its technical expertise directly to the WCO. Instead, industry could only inform the HS-decision making process by engaging a home country customs administration or coordinating through the International Chamber of Commerce (ICC). A formalized mechanism for private sector engagement with the WCO would help ensure that the HS stays up-to-date and aligned with technological advances and changing trading patterns.