



Submission of the
Semiconductor Industry Association

Proposed Modification of Action Pursuant to Section 301: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation

Docket Number: USTR-2018-0026
September 6, 2018

I. Introduction

The Semiconductor Industry Association (SIA) takes this opportunity for public comment to express our deep concern with the Administration's proposed tariffs on a number of products within the semiconductor supply chain, both upstream and downstream, including raw materials, manufacturing parts and equipment, substrates/printed circuit boards, printed circuit assemblies, heatsinks, telecoms networking equipment, and customer desktops/servers.

Semiconductors and its value chain are the bedrock of the modern American economy, powering virtually everything digital from cellphones and cars to supercomputers and military systems. U.S. chipmakers lead the world with close to half of the global market share. Semiconductors are America's fourth largest export, with a global trade surplus of over \$6 billion and a trade surplus with China of \$1.97 billion in 2017.¹ Nearly half of the manufacturing operations of major U.S. semiconductor firms is located here in the United States, across 19 states, directly employing close to 250,000 workers in the U.S. with well-paying jobs. More importantly, we are one of America's top exporting industries and a critical strategic asset that helps to drive U.S. economic competitiveness and technological leadership.

Taken together with the Administration's previously announced tariffs on semiconductors and semiconductor manufacturing equipment (HS 8541, HS 8542, and HS 8486), the additional proposed \$200 billion in tariffs threaten nearly the entire ICT ecosystem that underpins the U.S. economy, hundreds of thousands of jobs, innovation, and U.S. leadership in critical technology sectors. If these tariffs are imposed, the potential harm to the U.S. consumers, small businesses, economy and ICT industry will be profound, while the real target of the 301 investigation - Chinese forced tech transfer and IP theft- will remain unaddressed. Noting the significant threat to U.S. manufacturing, innovation, and technology leadership, we request that all the lines attached in Annex 1 be removed from the \$200 billion proposed tariff list, including printed circuit assemblies (8473.30.11), computer components (under 8471), and telecommunications equipment (8517.62.00).

¹ Official U.S. government trade data, U.S. Department of Commerce, obtained from the U.S. International Trade Commission, Dataweb: <https://dataweb.usitc.gov/>.

II. Harm to Consumers & Small Businesses

When viewed in combination with the 301 tariffs already imposed on \$50 billion in U.S. imports from China, the proposed \$200 billion list of tariffs will increase the cost of nearly every vital part and component used in U.S. ICT services and manufacturing operations. This includes raw materials like silicon, the highly sophisticated equipment and tools used for manufacturing, the semiconductor “brains”, printed circuit board substrates, printed circuit board assemblies, unfinished servers and computers, telecommunications networking equipment, and almost everything in between, including metal casings, batteries, cables, chargers and screws.

These critical parts and components go into essential consumer goods like laptops, PCs, servers, routers, etc. Many of these devices that are still assembled in the U.S. are assembled not by tech giants, but by small businesses. There are hundreds of small PC manufacturers in the U.S. that rely on critical parts and components like printed circuit assemblies, for which there are no cost-effective domestic alternatives.² Imposing tariffs on these products force companies to choose among several bad options: Pass on the costs to consumers and risk declining sales; absorb the cost increase and risk layoffs or bankruptcy; or more likely, move these electronics assembly operations out of the United States and ship in finished consumer goods from a location that is not subject to the proposed tariffs. Either way, small businesses and their U.S. employees will suffer.

Individual consumers in the U.S. will also face the negative impact of these tariffs. While finished consumer goods like laptops, PCs, and servers are not subject to the current proposed tariff list, the critical and high value components that go into these products and enable them to connect to the Internet are threatened with 25% tariffs. Raising prices on components that are integrated into essential consumer devices and then sold to consumers directly will mean an increase in prices for consumers. For example:

- One small PC manufacturer in the U.S., Bak USA, estimates that the tariffs on various critical inputs, including motherboards (8471.50.01) and computer parts (8473.30.51), will raise the cost to manufacture their products by \$74,946.45 per every 2,000 computers built.³
- An economic analysis released by the Consumer Technology Association (CTA) finds that a 25% tariff on printed circuit assemblies (8473.30.11) and wireless telecommunication equipment (8517.62.00) will increase the price of final consumer products utilizing these components by 6.2% and 6.3% respectively. This price hike will lead to an overall reduction of U.S. consumer purchasing by approximately 12% for each tariff line. The combined net impact on the U.S. economy is estimated to be \$2.41 billion, factoring in the increased cost of U.S. manufacturing, reduction in consumer spending power, and loss of consumer purchases.⁴

² [Written comments](#) by DBA Ace Computers, July 26, 2018.

³ [Written comments](#) by Bak USA, July 2018. Note that this number was calculated when List 3 tariffs were at 10%. At 25%, the price impact will be even higher.

⁴ “Estimated Impacts of Proposed Tariffs on Imports from China: Printed Circuit Assemblies and Wireless Telecommunications Accessories.” Prepared for the Consumer Technology Association, August 6, 2018.

III. Harm to U.S. Innovation & Technology Leadership in Telecommunications, 5G

Imposing tariffs on telecommunications equipment will impede the adoption of new and advanced internet-based technologies such as 5G, the Internet of Things (IoT) and big data. 5G networks depend on semiconductor-rich telecommunications equipment covered by the proposed \$200 billion list, including servers, gateways, modems, wi-fi routers, portable cellular access points, and Bluetooth-enabled smart technologies. We note that communications technologies are the largest end-use application segment for semiconductors, accounting for 32% of the \$412 billion worldwide semiconductor market in 2017⁵.

The U.S. has historically led the world in not only creating but adopting internet-based technology which has been dependent on low-cost, tariff free telecommunications hardware that underpins these networks. There is now a global race underway for the next generation of mobile technology, 5G, with 5G products expected to begin shipping in 2019. The global competition for technology leadership in this space is intense, with the Chinese government issuing multiple long-term plans to promote the growth of 5G and AI technologies within China⁶.

Taxing critical inputs to our nation's telecommunications network during a time of fierce competition for technology leadership will cause the U.S. to fall behind China in the race to build out 5G networks, an outcome antithetical to the original goals of the 301 investigation. Higher prices will also force telecommunications carriers to cut back investments in order to save costs, which will weaken America's technological strength, and could also lead to a decline in spending in areas like rural connectivity and security in order to continue meeting their basic business needs.

IV. Harm to U.S. Manufacturing Operations

As mentioned above, when viewed in combination with the 301 tariffs already imposed on \$50 billion in U.S. imports from China, the proposed third list of tariffs will increase the cost of nearly every vital part and component used in U.S. ICT services and manufacturing operations. Many of these components are highly cost sensitive with low profit margins. By taxing nearly all critical ICT components and inputs, these tariffs will significantly drive up the cost to manufacture and assemble high-tech electronics goods in the United States, in particular the assembly of high-end computers and servers that power the American digital infrastructure. Rather than inducing companies to shift supply chains back to the U.S., tariffs on vital ICT parts and components create misplaced incentives that will actually drive this last remaining high-end manufacturing and assembly out of the United States.

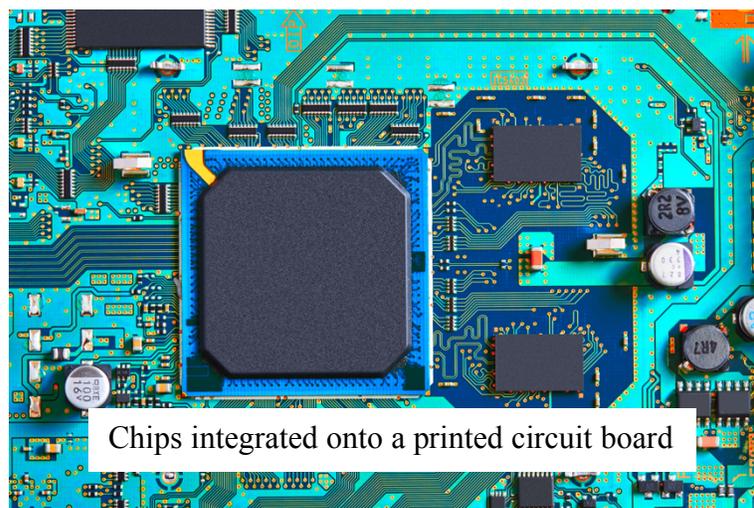
⁵ Source: WSTS

⁶ Testimony by the Telecommunications Industry Association, August 22.

SIA has already detailed the threat imposing tariffs on semiconductors and semiconductor manufacturing equipment will have on advanced manufacturing in its submission dated July 20.⁷ This third tariff list captures an even greater swathe of the semiconductor supply chain, including printed circuit assemblies like GPU boards, memory modules, and CPU motherboards. These are nearly all of the essential parts and components to high-end computing equipment such as autonomous vehicles, 5G telecommunications equipment, supercomputers, to even lower-end devices like small routers and services that power the small business economy.

Chipmakers sell chips individually or as printed circuit assemblies (PCA) depending on the preferences and needs of their customers. Printed circuit assemblies, in which individual chip components are mounted onto a substrate known as a printed (mostly green colored) circuit board, permit easy installation of semiconductor components for companies making consumer electronics, especially makers of computers, workstations, and servers.

Much like the final stage of semiconductor production known as assembly, test and packaging (ATP), the assembly of chips onto a printed circuit board is a low-value process. The majority of the value of a PCA comes from the



semiconductor components themselves and the design of the systems board, which as stated in SIA's July 20th submission, are largely designed and/or manufactured in the U.S., and then sent to China for low-end assembly. Companies have chosen to locate this low-value added r fv stage in China to serve their largest and fastest growing customer base⁸, while protecting sensitive IP by performing design and front-end manufacturing in the U.S. While a large percentage of PCAs and other critical ICT components are sold to customers in China for integration into a final product, they are also exported back to the U.S. to serve high-end assembly operations in the U.S.

China is the number one import country for U.S. imports of printed circuit assemblies used in computers and servers (HTS 8473.30.11), comprising 67% of all U.S. imports from the world.⁹ For many SIA member products under this HS code, China is the exclusive import source. However, as stated above, the vast majority of the value of these products is created in the U.S.

⁷ SIA Submission on the Proposed Determination of Action Pursuant to Section 301: China's Acts, Policies, and Practices Related to Technology Transfer, Intellectual Property, and Innovation. Docket Number USTR-2018-0018. July 20, 2018.

⁸ China is the largest semiconductor market, accounting for 32% of world semiconductor consumption in 2017. Source: World Semiconductor Trade Statistics (WSTS)

⁹ Source: Trade data compiled from tariff and trade data from the U.S. Department of Commerce and the U.S. International Trade Commission.

They are not domestic Chinese products. In addition, the printed circuit board and electronics assembly industry is actually dominated by Taiwanese, not mainland Chinese firms. Thus, the tariffs serve only to tax U.S. companies, while failing to have any impact on Chinese companies or China's unfair practices and policies.

The ultimate harm of these tariffs will be to U.S. employees and consumers. The U.S. semiconductor industry accounts for roughly a quarter million direct jobs in the United States and supports one million additional jobs in other parts of the U.S. economy.

V. Conclusion

As stated in previous submissions¹⁰, SIA supports the Administration's goal to address discriminatory and burdensome trade practices of the Chinese government. However, we have made the case to the Administration, in the strongest possible terms, that tariffs imposed on semiconductors and our supply chain will hurt America's chipmakers, not China's, and will do nothing to stop China's problematic discriminatory trade practices. We are disappointed and puzzled by the fact that semiconductors and related tariffs have remained on the Administration's tariff lists, despite overwhelming opposition via the public comment process. More than forty organizations requested the removal of semiconductor products in the round of comments on the \$16 billion list, with absolutely no comments in support. In order to restore faith in the public comment process, we request that the Administration give full consideration to these comments and make decisions that protect the interests of American consumers and businesses.

¹⁰ See SIA comments on the 301 process filed October 2017, May 2018, and [July 2018](#).

Annex 1: Lines Requested for Removal from \$200 Billion Proposed Tariff List

HTS Subheading	Product Description	U.S. Imports from China (\$), 2017
1. 2804.61.00	Silicon containing by weight not less than 99.99 percent of silicon	9,753,593
2. 3701.99.60	Photographic plates and film, nesoi, in the flat, sensitized, unexposed, of any material other than paper, paperboard or textiles	2,014,754
3. 3705.00.00	Photographic plates and film, exposed and developed, other than cinematographic film	188,198
4. 3818.00.00	Chemical elements doped for use in electronics, in the form of discs, wafers etc., chemical compounds doped for electronic use	109,834,855
5. 3923.10.20	Boxes and similar articles for the conveyance or packing of semiconductor wafers, masks or reticules of subheadings 3923.10 or 8485.90	14,903,900
6. 5911.90.00	Textile products and articles, of a kind used in machinery or plants for technical uses, specified in note 7 to chapter 59, nesoi	62,130,257
7. 6909.11.20	Porcelain or china ceramic machinery parts	20,061,725
8. 7017.10.30	Fused quartz reactor tubes and holders designed for insertion into diffusion and oxidation furnaces for semiconductor wafer production	287,386
9. 7020.00.30	Quartz reactor tubes and holders designed for insertion into diffusion and oxidation furnaces for semiconductor wafer production, nesoi	5,201,651
10. 8471.50.01	Processing units other than those of subheading 8471.41 and 8471.49, nesoi	4,412,073,933
11. 8471.70.50	ADP magnetic disk drive storage units, disk dia. n/ov 21 cm, nesoi, not entered with the rest of a system)	587,436,050
12. 8471.80.10	Control or adapter units for automatic data processing machines not entered with rest of a system	1,173,460,880
13. 8473.30.11	Printed circuit assemblies, not incorporating a cathode ray tube, of the machines of 8471	11,557,770,918
14. 8473.30.51	Parts and accessories of the ADP machines of heading 8471, not incorporating a CRT, nesoi	3,060,470,982

15. 8504.40.60	Power supplies suitable for physical incorporation into automatic data processing machines or units thereof of heading 8471	531,798,850
16. 8504.40.95	Static converters (for example, rectifiers)	2,290,430,953
17. 8517.62.00	Machines for the reception, conversion and transmission or regeneration of voice, images or other data, including switching and routing apparatus	22,935,187,145
18. 8517.69.00	Other apparatus for transmission or reception of voice, images, or other data, including apparatus for communication in a wired or wireless network	948,465,837
19. 8523.52.00	Semiconductor media “smart cards”	281,338,562
20. 8523.59.00	Semiconductor media nesoi	25,016,269
21. 8525.80.30	Television cameras, nesi	957,243,559
22. 8534.00.00	Printed circuits, without elements (other than connecting elements) fitted thereon	929,714,106
23. 8537.10.91	Other boards, panels, consoles, desks, cabinets, etc., equipped with apparatus for electric control, for a voltage not exceeding 1,000, nesi	1,591,044,802
24. 8544.42.20	Insulated electric conductors nesi, used for telecommunications, for a voltage not exceeding 1,000 V, fitted with connectors	1,208,061,104
25. 8544.42.90	Insulated electric conductors nesoi, for a voltage not exceeding 1,000 V, fitted with connectors, nesoi	1,416,242,352
26. 8547.90.00	Electrical conduit tubing and joints therefor, of base metal lined with insulating material; insulating fittings for electrical goods nesoi	42,242,856
TOTAL		\$54,172,375,477

Source: Official U.S. government trade data, U.S. Department of Commerce, obtained from the U.S. International Trade Commission, Dataweb: <https://dataweb.usitc.gov/>. Downloaded August 7, 2018.