Before the
DEPARTMENT OF COMMERCE
Bureau of Industry and Security
Washington, DC 20230

In the Matter of	)	
	)	
Risks in the Semiconductor Supply Chain	)	Docket No. 210915-0189
	)	

COMMENTS OF USTELECOM—THE BROADBAND ASSOCIATION

USTelecom – The Broadband Association ("USTelecom")[1] submits these comments in response the Department of Commerce ("Department") Bureau of Industry and Security ("BIS") request for public comments in the above-captioned proceeding.[2] USTelecom shares the Department's concerns regarding the impacts of the continuing global shortage of semiconductors. For reasons addressed in these comments and explained further in USTelecom's recently published paper *Semiconductor Supply Chain Resiliency* ("Attachment A"),[3] the United States urgently needs to increase manufacturing capacity for semiconductors, while the private sector mitigates short-term impacts.

[1] USTelecom is the premier trade association representing service providers and suppliers for the telecom industry. Its diverse member base ranges from large publicly traded communications corporations to small companies and cooperatives—all providing advanced communications services to both urban and rural markets.

[2] *Risks in the Semiconductor Supply Chain*, Notice of Request for Public Comments, Docket No. 210915-0189, (rel. Sept. 24 2021).

[3] USTelecom, Semiconductor Supply Chain Resiliency (2021), https://www.ustelecom.org/research/semiconductor-supply-chain-resiliency.

As observed in the 100-Day Review of semiconductor manufacturing[4] led by the Bureau under Executive Order 14017, "America's Supply Chains," "the semiconductor-based integrated circuit is the 'DNA' of technology and has transformed essentially all segments of the economy . . . ."[5] Semiconductors (of varying size and complexity) are used at virtually every level of the ICT ecosystem, including 5G and next generation broadband networks, as well as in the administration, management, and operational control of those networks. We welcome this opportunity to highlight the real impacts USTelecom members are currently experiencing and potential continuing effects due to chipset shortages.

USTelecom members are seeing impacts across their businesses including broadband, video, mobile, and infrastructure resulting in longer product lead-times, reduced supply and visibility for supply availability, and increased pricing. Component shortages (particularly semiconductors) and transportation capacity have been the biggest drivers of these impacts. Semiconductor shortages are expected to persist well into 2022 and potentially beyond.

I. RECOMMENDATIONS FOR AMERICAN SEMICONDUCTOR SUPPLY CHAIN RESILIENCY

USTelecom presently chairs the Communications Sector Coordinating Council ("CSCC") and co-chairs the Department of Homeland Security ("DHS") Information Communications Technology ("ICT") Supply Chain Risk Management ("SCRM") Task Force. Supply chain availability in the context of the ICT sector can impact broader considerations of national and

[4] The White House, Building Resilient Supply Chains, Revitalizing American Manufacturing, and Fostering Broad-Based Growth 21 (June 8, 2021), https://www.whitehouse.gov/wp-content/uploads/2021/06/100-day-supply-chain- review-report.pdf.

[5] *Id.* at 22.

economic security, especially given the transformational effects of the COVID-19 pandemic on society's need for digital connectivity.

Semiconductors have enabled broadband providers and other ICT industries to sustain our economy and keep Americans connected during the pandemic. The associated growth in internet traffic—and with it, society's need for semiconductors— seems likely to remain elevated going forward, as the willingness of people and institutions to rely upon digital connectivity is here to stay.

With the above in mind, USTelecom presents the following recommendations for America's national supply chain policy, discussed at greater length and with additional context in in our *Semiconductor Supply Chain Resiliency* white paper ("Attachment A")[6]:

1. <u>The United States urgently needs to increase manufacturing capacity for semiconductors.</u> Looking ahead, it is critical that the United States invest in U.S.-based manufacturing, R&D, and innovation as laid out in the CHIPS Act and USICA. Both parties in Congress and the Administration have supported the strategy embedded in the legislation, which calls for investment in semiconductor manufacturing facilities and R&D. And it is important for the U.S. to follow through on refundable investment tax credits for U.S. semiconductor manufacturer investments and equipment purchases. Put simply, policymakers agree that the United States can no longer rely on such a high concentration of chip supply coming from one supplier in one part of the world.

[6] USTelecom, Semiconductor Supply Chain Resiliency (2021), https://www.ustelecom.org/research/semiconductor-supply-chain-resiliency.

2. The demand for semiconductors in other industries (e.g., the auto industry) should not come at the expense of the essential needs of broadband providers and the continued technological leadership and economic security of the United States. The United States government should avoid advancing any policies that favor the needs of specific industries, as such treatment would have various unintended consequences. Though the auto industry has been impacted by the semiconductor shortage, policy measures such as inventory set-asides and mandatory allocation of chip supplies, distort and potentially harm market forces that determine chip allocation today. Set-asides for automakers would also potentially put at risk the needs of sectors crucial to U.S. innovation and economic growth, such as broadband services and the nation's communications infrastructure.

3. Public-partnership is essential. Leading companies have already begun to plan ways to mitigate today's shortages and to reduce the risk of future shortages, from short term measures like improved supply chain transparency and increased inventory of essential components, to additions of new U.S.-based chip making capacity to meet the growing demand for chips. But the issues the industry and therefore the economy face cannot be addressed in any meaningful way by the private sector alone; there is a need for government partnership. The CHIPS Act and USICA are two vehicles to create those partnerships. The time for public-private partnership on chip manufacturing has come.

II. RESPONSES TO QUESTIONS FOR END USERS OF SEMICONDUCTOR PRODUCTS OR INTEGRATED CIRCUITS

In general, USTelecom's members buy finished products that contain components made with semiconductors and do not manufacture semiconductor materials. Therefore, we provide responses below to a subset of the Department's questions aimed at end users of semiconductor

products. While USTelecom is not itself an end user, we answered questions that were possible for us to answer based on the information made available to us by members. Each question below has a letter that corresponds to the Department's questionnaire, hence in some instances letters are skipped.

In general, individual companies will have concerns about answering questions involving highly sensitive confidential information that could put them at a commercial disadvantage with competitors. Therefore, we aggregated information from many members in order to provide the Department with better clarity about the impacts to our sector than any one member might feel comfortable providing.

a. Identify your type of business and the types of products you sell.

USTelecom is the premier trade association representing service providers and suppliers for the telecom industry. Our members purchase finished semiconductor products and use them to deliver services to their customers, including internet access and associated services to residential customers and small businesses, as well as network and telecommunications services to enterprise and government customers.

b. What are the (general) applications for the semiconductor products and integrated circuits that you purchase?

Because of USTelecom's diverse membership, the equipment purchased by our members has numerous applications. Below are some general product categories that are typically applicable to broadband providers:

1. Mass market Customer Premise Equipment (i.e. modems)
2. General network equipment (routers, switches, servers)

3. Fiber infrastructure equipment (fiber, fiber cabinets, racks, batteries, etc.)

d. What are the primary disruptions or bottlenecks that have affected your ability to provide products to customers in the last year?

Below are the key bottlenecks that USTelecom members are observing:

1. Component availability

   The main reason for the extended lead time is lack of component availability. Component manufacturers often require non-cancellable purchase orders 12 months or more in advance, and those periods continue to stretch. Even with those long lead times and committed POs, allocations change frequently, thus there is a high level of instability in the industry that makes delivering services to our customers very challenging.

2. Labor disruptions

   Additionally, there are shortages and disruptions in labor that change lead times unpredictably. COVID-related shutdowns impact lower tiered suppliers. Therefore, even if most components are ready, a single component can impact our suppliers' ability to deliver product to us.

3. Transportation delays

   To make matters worse, there are significant delays in transportation – especially inbound from Asia, but also domestic heavy freight transportation. Port congestion is the key driver, but also shortages in ships and containers (many of them waiting by the major ports such as LA), and shortages of drivers. In some cases, this has resulted

in adding two additional months to the "normal" transit times and adding a high level of unpredictability to those times. This has also resulted in price increases of up to 1,000%.

4. Prioritization to other industries

   More recently, we have seen prioritization to other industries, such as automotive, drive late decommits that have impacted our members' customers. Even if 99% of components are ready, diverting the remaining 1% to the automotive industry can – and has – stopped some of our members' suppliers from providing finished product.

5. Plastic resin availability

   Winter storms in Texas impacted key suppliers of resin, limiting the suppliers' ability to provide products with heavy plastic content on time. These products are generally used for fiber infrastructure (i.e. pedestals, conduit), which is key for our members' businesses and their customers.

e. Is your organization limiting production due to lack of available semiconductors? Explain.

While providers are not intentionally limiting deployment, the inevitable result of semiconductor shortages is to limit their ability to deploy equipment on time. Therefore, there have been instances where some providers indicated they were not able to deliver service to their customers in a timely manner due to component shortages.

f. What percentage of your current production has your organization had to defer, delay, reject, or suspend in the past year? Explain.

In the last year, providers have been able to mitigate most risks. However, current circumstances are much more difficult and there is risk for a much broader impact.

g. Is your organization considering or carrying out new investments to mitigate semiconductor sourcing difficulties? Explain.

A number of our members indicated they are considering new investments to mitigate sourcing difficulties. The main avenue is to increase inventory on hand and commit to purchases much earlier (thus increasing risk of overage or shortage). However, some members also indicated they are considering investing in alternatives such as different products, and to continue to use older technology in lieu of upgrading their networks, which would require equipment that is not always available.

h. What semiconductor product types are most in short supply and by what estimated percentage relative to your demand? What is your view of the root cause?

Our members raised concerns about the supply of mass market CPE, general network equipment, and fiber infrastructure equipment, among other categories of products. The main concern is lack of availability of semiconductors. Other factors include labor shortages, transportation delays, resin shortages, and prioritization of components to industries such as automotive. While government funding should be directed towards production of semiconductors, including both advanced chips and legacy chips, there should be no preferential treatment for one industry.

i. Has your organization changed its material and/or equipment purchasing levels or practices in the past three years?

Providers of telecommunications services are buying equipment much further in advance, releasing purchase orders as much as 17 months in advance. This started with the COVID-19 pandemic and has extended significantly because of semiconductor shortages. Additionally, providers are attempting to increase on hand inventory to increase safety stock, though that is very challenging in this environment.

j. What single change (and to which portion of the supply chain) would most significantly increase your ability to purchase semiconductors in the next six months?

Increase in basic semiconductor supply (wafers). That would allow tier 3-4 suppliers to manufacture components with more predictability, and in turn that would allow tier 1-2 suppliers to provide product faster and more consistently.

This would require an increase in capacity in the semiconductor industry. Given that geopolitical pressures in key areas (*e.g.,* Taiwan) threaten the stability of the global supply chain for semiconductors, there is significant risk in the mid-term. Increasing and diversifying capacity in that industry is key to maintaining a strong economy.

k. What percentage of your orders are fulfilled by distributors versus through direct purchase orders to semiconductor product manufacturers?

The split is based on product type. Providers may buy most CPE and network equipment directly from Original Equipment Manufacturers ("OEMs"), Original Design Manufacturers ("ODMs"), and Contract Manufacturers ("CMs"). They may buy general infrastructure equipment through distributors. In terms of value, providers may purchase a substantial majority directly from suppliers.

m. Has your organization faced "de-commits" (defined as a notification from a supplier that expected or committed supply will not be delivered in the agreed-upon time and quantity) in recent months? If this is a significant issue, please explain (*e.g.*, nature of product, supplier, impact).

Decommits have absolutely been an issue over the last year, they are an issue today, and we expect them to continue to be an issue for at least the next year. The key factors driving decommits are:

1. Lack of component availability

   Many tier 2-4 suppliers, such as chip manufacturers, are requiring non-cancellable purchases orders 12 months in advance. Even with those commitments, there are late decommits across the board. There are hundreds of components in the products providers buy, and thousands of sub-components, so it only takes one to stop the supplier from being able to manufacture a final product. Unfortunately, that is a common occurrence in this environment.

   To mitigate this problem, providers are working with their suppliers to identify and qualify substitutes, make opportunistic purchases in the spot market (at a higher cost), and make longer commitments up front.

2. Labor disruptions

   There are still labor disruptions associated to COVID, with outbreaks in countries such as Malaysia limiting capacity in production facilities. That drives late decommits downstream in the process.

3. Transportation delays

   Providers have seen unplanned delays (in some cases up to two months) as a result of limited capacity in the transportation industry, mainly as a result of port congestion. This has driven late decommits. In normal circumstances, providers would be able to absorb those disruptions through safety stock, but given limited supply, this makes for a very challenging environment.

4. Prioritization to other industries

   There have been recent cases where prioritizing supply of sub-components for the automotive industry resulted in late decommits for product for the telecommunications industry, which resulted in significant impact to customers.

III. CONCLUSION

USTelecom appreciates this opportunity to share our members' findings related to the impact of the global semiconductor shortage and contribute industry perspectives relevant to the Department's goals in this proceeding. We look forward to remaining engaged with the Department on this matter of critical importance to national and economic security.

Respectfully submitted,

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