ITI Promoting Innovation Worldwide

November 8, 2021

Mr. Matthew Borman
Deputy Assistant Secretary for Export Administration
Bureau of Industry and Security
U.S. Department of Commerce
1401 Constitution Ave NW
Washington, DC 20230

RE: ITI Comments Responding to Bureau of Industry and Security Request for Public Comments on Risks in the Semiconductor Supply Chain

Dear Mr. Borman:

The Information Technology Industry Council (ITI) appreciates the opportunity to provide a response to the U.S. Commerce Department's *Request for Public Comments on Risks in the Semiconductor Supply Chain (the RFC)*, pursuant to Executive Order 14017.

The Information Technology Industry Council (ITI) is the premier global advocate for technology, representing the world's most innovative companies, including the major companies involved in the semiconductor manufacturing and packaging supply chain as well as the companies who design and manufacture the downstream consumer and commercial information (ICT) products that use semiconductors. Founded in 1916, ITI is an international trade association with a team of professionals on four continents. Our diverse membership and staff provide policymakers the broadest perspective and thought leadership from technology, hardware, software, services, and related industries.

Semiconductors are vital to U.S. economic competitiveness and national security, as are many of the technologies that rely on a secure supply of chips, such as 5G, Internet of Things (IoT), Artificial Intelligence (AI), data centers and cloud computing, quantum computing, and supercomputer development. During the pandemic, semiconductors have been particularly vital in powering the ICT products and services necessary to drive healthcare and the government's response to COVID-19, as well as enabling millions of students and workers to learn and work remotely. ITI and its members strongly believe that for the U.S. to maintain its technology leadership the U.S. government must prioritize actions that will strengthen and diversify semiconductor supply chains, starting by making significant near-term investments in increasing U.S. research, design, and manufacturing capacity, as well as investing in a strong, skilled advanced manufacturing workforce. These investments must also be sustained over the long-term.

ITI and its member companies share a strong commitment to address challenges to global semiconductor supply chains. We believe government and industry must work together to achieve the trusted, secure, and reliable global supply chain that is essential for protecting national and economic security and an indispensable foundation for supporting innovation and economic growth. In the course of its review and its efforts to identify semiconductor supply chain bottlenecks, we encourage the U.S. government to recognize that such improvements will not happen overnight.

Given the unprecedented demand for chips, ITI encourages the U.S. Government to remain focused on supporting and accelerating strategic investments in research, development, prototyping,

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manufacturing, and advanced packaging capacity across the semiconductor supply chain ecosystem, with a particular focus on gaps in U.S. capabilities. Of note, there is currently no manufacturing capacity or capability in the United States to produce leading edge semiconductors at or below 7 nanometers.

The ongoing shortage in semiconductor chips has impacted a wide range of industries in the U.S. economy, and in particular ICT companies, which are the largest consumers of semiconductors by far. According to the Semiconductor Industry Association (SIA), computers and communications alone accounted for 63.5 percent of total end use demand for semiconductors in 2020[1], with chip sales into computers increasing by more than 21 percent due to COVID. Due to unprecedented market demand for semiconductors, ITI members have been experiencing increased lead times for semiconductor orders, delays in semiconductor shipments, and in some cases decommits from semiconductor suppliers. The reasons for these disruptions range from supply constraints including wafer shortages, substrate shortages, COVID-related delays and stoppages at production facilities, and supplier prioritization of customers from certain sectors.

In light of these disruptions, and the U.S. government's interest in understanding and addressing the current semiconductor shortage, we appreciate the opportunity to provide general comments and recommendations to Section 9 followed by a compilation of anonymized responses from several ITI member companies in response to RFC questions 1 and 2.

General Comments and Recommendations

Move Quickly to Fund the CHIPS for America Act. As the Biden administration has emphasized, there is a compelling need for increased investments in domestic semiconductor manufacturing capacity and capability. While this is unlikely to be a quick fix to the current global semiconductor challenges, these investments are long past due and are necessary to ensure that the United States is prepared to manage any future disruptions to semiconductor supply chains. The pandemic has accelerated unprecedented digitalization and the demand for chips is high across all industries. We therefore strongly encourage the Administration to continue its focus on investing in American technology innovation to address semiconductor supply chain challenges for the long term. An important first step is for Congress to take prompt action to fund the "Creating Helpful Incentives for the Production of Semiconductors" (CHIPS) for America Act and enact a strengthened version of the "Facilitating American Built Semiconductors" (FABS) Act to include an investment tax credit for both design and manufacturing. Semiconductors are essential to virtually all sectors of the economy – including aerospace, automobiles, communications, clean energy, defense, information technology, and medical devices – and investments in this critical technology area are among the most strategic investments the United States can make in its future. Further, we strongly encourage the Commerce Department to begin laying the groundwork for the implementation and administration of programs such as that called for by CHIPS for America Act, as doing so will set up the Commerce Department for success in quickly and efficiently administering these important grants and R&D programs when appropriate. Funding the CHIPS Act and enactment of a strengthened FABS Act will help the United States remain competitive by incentivizing semiconductor research, design, and manufacturing in the U.S., thereby strengthening the U.S. economy, national security, strategic partnerships, and overall ICT supply chain resilience.

[1] 2021 State of the U.S. Semiconductor Industry. SIA.

Ensure a Non-Discriminatory Approach and Cooperation with Global Partners. ITI encourages the U.S. to apply a principle of non-discrimination when incentivizing strategic investments. This will ensure that the U.S. remains a competitive investment destination for the world's most advanced and innovative technology solutions, from semiconductors to automobiles. In addition to bringing the most advanced technologies and associated jobs to the United States, a non-discriminatory approach reinforces the Biden Administration's priority of rebuilding relations with allies and partners and ensures that U.S. companies will get to benefit from similar programs abroad. For example, we are encouraged that the EU, Japan, Korea, Taiwan, and Singapore have incentive programs for advanced manufacturing that allow for U.S. investors to participate equitably and fairly compared to domestic corporate applicants. In addition, the semiconductor supply chain is complex and global. Geographic diversification has become critical as it lowers costs, promotes efficiency and productivity, enables access to top global talent and growing customer bases, and mitigates supply chain risks. The U.S. should consider working with allies and partners to drive alignment on strategic objectives around ensuring the resiliency of the global semiconductor supply chain. Forums like the U.S.- Mexico High-Level Economic Dialogue, the U.S.-EU Trade and Technology Council, and the Quad should all be leveraged to foster dialogue amongst global partners and devise consistent and complementary approaches to address common challenges or risks.

Empower Resiliency and Diversification. While the near-term semiconductor issues are extremely important and urgent, it is critical for the U.S. government to look to the future. Semiconductor supply chain management practices are complex and require both long-term planning and active management of supplier relationships with hundreds of companies around the world. As the Administration has also noted, these adjustments will need to be market-led. Practically, it is difficult for policymakers to have a dramatic impact on today's semiconductor supply challenges due to long lead times and infrastructure constraints. Other than remaining focused on strategic investments in manufacturing capacity across the semiconductor ecosystem as mentioned above, ITI recommends exploring international partnerships that can help make the global supply chain more resilient and less susceptible to geopolitical disruptions. While addressing domestic semiconductor manufacturing capacity via investments in programs such as CHIPS and FABS is a critical and foundational step for positioning the U.S. to better manage any future disruptions to semiconductor supply chains, the objective of these programs should not be a wholly domestic supply chain for microelectronics. That is why working with trusted international partners and allies should also be an important prong of any U.S. strategy to help prevent future disruptions, promote diversification, and ensure the resiliency and security of the semiconductor supply chain.

Strengthen the Technology Workforce. Though the workforce issue does not appear as a specific question in the RFC, it is important for the U.S. to support significant funding for science, technology, engineering, and mathematics (STEM) and computer science education to meet the rising demand of chips. A successful advanced manufacturing ecosystem relies on a robust, highly trained, and skilled domestic workforce. We welcome the Senate's passage of U.S. Innovation and Competition Act (USICA) investing in STEM education and the United States must prioritize building and maintaining its domestic workforce by ensuring a steady talent pool with the necessary advanced manufacturing skills needed to meet future demand. Policymakers should support access to high-quality instructional materials and rigorous STEM and computer science coursework for students from underserved communities, hands-on practical experience for students, and effective regional partnerships.

Caution That the RFC's Data Collection Approach May Not Provide an Accurate Picture. While the desire to identify data-driven solutions to the current challenge is understandable, we caution that the

RFC may not be the most effective way to identify and solve the issues related to semiconductor supply that companies and consumers may face in the future. As a preliminary matter, the RFC seeks sensitive and proprietary information that has direct implications for enterprises' competitive position in the marketplace, as well as their suppliers and customers. Disclosure of such information is sensitive, and concerns regarding that sensitivity are heighted both by a lack of clarity about how this data will be used and who will have access to it, as well as by unclear messaging from the Administration on these points. Further, ICT products use a complex array of different types of chips, with a single device using semiconductors from potentially hundreds of suppliers, who in turn make thousands of different chip products, making the level of detail sought in the RFC a significant collection burden for the same teams at our member companies responsible for managing the chip shortage. The information requested is also quite dynamic, with markets and bottlenecks changing on a nearly weekly basis, so we caution that the RFC may not yield information that presents an accurate or meaningful picture of the overarching semiconductor supply chain. While industry supports the goal of identifying bottlenecks, the sensitive nature of the RFC is sending a worrying signal to global semiconductor industry stakeholders, including to other governments that may have an interest in compelling companies to share similar data, perhaps for less worthy purposes.

Specific Comments

Below, ITI presents a compilation of anonymized member responses in response to the specific questions in the RFI to which we received inputs. For the sake of consistency and to aid in the Commerce Department's analysis of the below responses, please note that all the responses labeled as "Company A" originated with the same company, as did all of the responses labeled as originating from "Company B," and so on.

1. For semiconductor product design, front and back-end manufacturers and microelectronics assemblers, and their suppliers and distributors:

a. Identify your company's role in the semiconductor product supply chain.

Company A: Design, manufacturers (and manufacturing equipment makers), test, packaging, assembly, a host of end-users in the ICT sector, e-payments, medtech, etc.

Company B: We are a global innovator focusing on digitalization of industry, with special competencies in semiconductor design software. The company has developed technologies that support multiple American industries including manufacturing, electronics, energy, healthcare, and infrastructure.

Company C: We provide materials for almost every stage of wafer fabrication and semiconductor packaging and has been doing so in the US and Europe. Two key product lines produced by us to support advanced semiconductors are Ultra-Pure Hydrogen Fluoride (UPHF) and Sputtering targets. We are also one of three companies that make up the U.S. based supply for electronic polymers used in photolithography, masking, and spin on dielectric applications in the chip manufacturing process.

b. Indicate the technology nodes (in nanometers), semiconductor material types, and device types that this organization is capable of providing (design and/or manufacture).

Company A: All from the world's most advanced, leading-edge chips being deployed to build 5G communication networks, high-performance/quantum/exascale computer systems (including those used by the national labs to ensure weapons systems readiness), AI applications, and the most advanced defense applications (F-35 avionics package, for example); to more legacy applications used in standard consumer electronics, vehicles, etc.

Company B: We supply products in each category of the semiconductor lifecycle, from new product ideation through all aspects of design and manufacturing operations management. Given our unique perspective as a supplier across the lifecycle, our comments come from our perspective as a supplier of technologies that can be leveraged to build more transparency and resiliency into this vital supply chain. Our experience indicates the right mix of technologies can bring more transparency and cost effectiveness to the supply chain in the short term and ultimately support more domestic manufacturing capacity over the long term.

All semiconductor companies (fabs, fabless, IDMs, foundries, OSATs or subcons, and photonics) can use state-of-the-art software solutions for the semiconductor industry from us to drive innovation and increase productivity. We provide business solutions for the semiconductor design and manufacturing industry and can deliver scalable, adaptable, and flexible solutions in support of high yield, first-time-right advanced manufacturing of these complex technologies for current and future technology nodes. The technology node (i.e., process node, process technology or simply node) refers to a specific semiconductor manufacturing process technology and its design rules. Different nodes often imply different circuit generations and architectures. Generally, the smaller the technology node means the smaller the transistor feature size, enabling smaller transistors which are both faster and more power efficient.

Company C: As mentioned above, we provide materials for almost every stage of wafer fabrication and semiconductor packaging, especially UPHF and Sputtering targets. Further, there are various levels of purity for UPHF. We manufacture UPHF primarily in Bryan, Texas and in Seelze, Germany. Our current manufacturing processes and technology for making UPHF could be upgraded to handle many of the more advanced chips (<10 nanometers). Our sputtering targets, especially Copper Manganese, are core inputs for advanced semiconductor manufacturing. There are fewer than ten semiconductor-grade sputtering target manufacturers in the world, and we are a technology leader who serves the most advanced semiconductor customers in the industry. Moreover, we are the only company manufacturing sputtering targets for the most advanced nodes in the U.S. and is facing intense competition from other suppliers from Asia. A large portion of the world's electronic polymers used in photolithography, masking, and spin on dielectric applications in the chip manufacturing process are supplied by companies based outside of the U.S. We are also one of three companies that make up the U.S. based supply.

e. For each phase of the production process, identify whether your organization carries out the step internally or externally. For your organization's top semiconductor products, estimate each product's (a) 2019 lead time and (b) current lead time (in days), both overall and for each phase of the production process. Provide an explanation of any current delays or bottlenecks.

Company A: In today's modern economy, we see a rising demand for semiconductors in all sectors, including cars, consumer electronics, home appliances and many other key goods. The pandemic has accelerated digitalization significantly and the demand for chips is extremely high across all industries. Overall, our industries manage pandemic related delays well due to the resiliency of the global supply chain itself and best practices within the ICT supply chains for inventory management.

Company B: The disruptions caused by the COVID-19 pandemic have laid bare the importance of being "glocal"; that is, having a secure, reliable supply of semiconductors is critical to our economic competitiveness, to our national preparedness, and to making our infrastructure more connected and ultimately intelligent. We believe government and industry can jointly support the growth of a resilient, secure, and advanced domestic semiconductor industry.

Company C: It is our understanding that all UPHF manufacturing locations in Asia are dependent on China for either its Fluorspar, the key starting mineral needed to make UPHF, or Anhydrous Hydrogen Fluoride (AHF), both key raw materials for the manufacture of UPHF. This does not make for a resilient US supply chain. Limiting supply to one geographical region could potentially limit access to these chemicals required for semiconductor manufacturing. Fluorspar /AHF restrictions on any company providing high end chips to the US is also possible. Further, DOD could be limited in its ability to obtain advanced chips for its weapons, systems, and high-end computers/servers.

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

Company A: Shipping challenges, delays due to extreme weather, pandemic related closures; this obviously varies significantly company by company and jurisdiction by jurisdiction but ripe to point out why have a globally integrated supply chain has been critical to ensuring that production of semiconductors has been able to continue, largely uninterrupted compared to other industries, and note that production is higher than pre-pandemic levels. It also might be where you can point out that economies that prioritized the semiconductor industry as a critical industry (and were allowed to remain open during pandemic) have done better. Taiwan, Korea might be positive examples.

Company B: Logistical and communications failures are some of the root causes for the shortages. The ultimate solution to this is further utilization of digital tools that improve processes and communications across companies. Industry and government can partner to improve supply market intelligence, visibility to source of supply, identified risk drivers (financial, lead time, weather, geopolitical, etc.) for critical sectors of the US manufacturing base. We encourage the Bureau of Industry and Security and others within the U.S. government to consider leveraging Design-to-Source Intelligence (DSI) as it works on this challenge.

Additionally, we recommend the U.S. government work with partners and through multilateral forums to ensure a robust ecosystem of vendors that can support semiconductor manufacturing. The administration should take a measured, cautious approach to regulating the use of industrial software to fully assess availability before imposing new export restrictions. This will support the United States maintaining its status as market of choice for foreign direct investment from the world's most advanced and innovative companies. It will further support the Administration's goals for strengthening partnerships with allies and supports our companies' abilities to engage in incentive programs in other nations. We stand ready to support the Administration if it chooses to engage in semiconductor supply

chain reviews and building alignment on strategic investment with allied nations.

i. If the demand for your products exceeds your capacity, what is the primary method by which your organization allocates the available supply?

Company A: Varies by company but many have publicly noted their commitment to working to balance supply. Again, remind them of the macroeconomic demand drivers; broadly speaking the pandemic accelerated digitization of education, healthcare, life in general; as we were already building capacity for megatrends like 5G roll-out, adoption of AI fueled technology, consumer preference/need for reliable, high-speed services, etc.

j. Does your organization have available capacity? If yes, what is preventing the filling of that capacity?

Company A: Some companies are operating above their max capacity and running fabs 24 hours, 7 days a week, and 365 days, for us, we have some fabs running above 100%. According to the Semiconductor Industry Association (SIA)'s state of the industry report[2], the industry has run fab utilization well above the normal utilization level of 80 percent. When market demand runs high, such as in a cyclical market upturn like the one the market is in now, front-end semiconductor fabrication facilities, or fabs, will typically run above 80 percent capacity utilization, with some individual fabs running as high as between 90-100 percent.

k. Is your organization considering increasing its capacity? If yes, in what ways, over what timeframe, and what impediments exist to such an increase? What factors does your organization consider when evaluating whether to increase capacity?

Company A: Yes; broadly speaking the industry was in the process of expanding capacity well-before the pandemic to meet growing demand for chips, but the pandemic itself is the biggest driver to increase capacity. Several companies already invested to expand capacity in the United States, particularly in Texas and Arizona, and other global locations, such as Taiwan and South Korea. Therefore, continuing efforts to fund the bipartisan *Creating Helpful Incentives for the Production of Semiconductors for America Act*, or *CHIPS Act*, and pass a strengthened *Facilitating American-Built Semiconductors Act*, or *FABS Act*, that incorporates a semiconductor investment tax credit for both design and manufacturing, is crucial.

Company B: We continue to invest in innovative software solutions for all semiconductor companies to create products with fewer design re-spins and a higher degree of design success. Supporting the digital transformation of existing/legacy chip fabrication site infrastructure to make them smart factories will allow them to quickly expand domestic manufacturing capacity of commodity-level chips. Currently, there is national attention on the availability of chips for the U.S. auto industry and consumer products. While we encourage research and investments in the next generation of chips, it is important to keep in mind that the chips that are used in consumer electronics and automobiles are not necessarily the most state-of-the-art technology. There are several dozen US fab sites that are ripe for upgrades to their IoT infrastructure and manufacturing processes that will allow them to boost output, lower costs and be globally competitive. This presents an opportunity for the "legacy" chips industry to adopt smart

[2] 2021 State of the U.S. Semiconductor Industry. SIA.

manufacturing and learn from adjacent industries, such as the auto industry's use digital twins, virtual commissioning, simulation, and IIOT connectivity from the shop floor to the c-suite. They would benefit from having clear signals from government and industry before they embark on capital improvements. The investments laid out in the US Innovation and Competitiveness Act to dedicate $2B for legacy fabs will help here.

Company C: We continue to selectively invest in critical technologies that are backed by long term customer agreements. Due to the cyclical nature of semiconductors, significant investments require customer commitments to ensure justifiable returns over the course of the investment. By supporting the *CHIPS Act* and *FABS Act* the US can significantly help in supporting adequate investments to meet the rapidly growing demand for semiconductors.

Company D: It is important that the governments provide demand signals for leading edge technologies. Leading edge demand incentives for next-generation capabilities, such as new broadband, 5G services, and greentech, can free up capacity in the legacy nodes underpinning auto production and other forms of manufacturing while creating broad economic value. For example, major forms of broadband are at the technology crossroads. Accelerating the migration of broadband and Wi-Fi solutions to newer process nodes is one solution to the chip shortage with the additional benefit of future-proofing the nation's broadband infrastructure.

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

Company A: There is no silver bullet. Unwinding shipping delays/bottlenecks and containers shortages could be a short-term solution (bottle necks at ports, rail stations etc.), but as an industry, semiconductor producers and end-users from automakers to ICT firms to hospitals all have acute needs. While the auto industry may be the most vocal about their challenges, there may be best practices within the ICT supply chains that have been applied and allowed for better inventory management. The biggest risk is an overreaction to the short-term challenges that could exacerbate the problems for all involved. In practice, both legacy and leading-edge production takes time to build, and semiconductor manufacturing process is the most advanced in the world with thousands of steps. Therefore, making strategic investments is key to unlock these opportunities.

2. Questions for intermediate users and end users of semiconductor products or integrated circuits:

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

Company E: We are a global payment network that facilitates secure and reliable transactions between financial institutions, merchants, and consumers and businesses. Integrated circuits (chips) are embedded in a wide range of products used to enable millions of consumers and businesses (including small to medium sized businesses) to initiate payments on the Company B's network, including plastic payment cards (often referred to as a "chip cards" or "smart cards"), personal devices such as mobile phones, and other form factors such as wristbands or watches.

In the U.S. in 2020 there were over 1.1 billion chip-enabled cards in circulation, accounting for almost 73% of card-present transactions[3]. In 2019, credit cards alone accounted for more than 108.6 million transactions a day, with an additional 77.4 billion debit card transactions that year in the United States[4]. Chip card adoption is even higher in the rest of the world, with at least 95% of card-present transactions using an EMV chip in Europe, the Middle East and Africa, and Canada, Latin America, and the Caribbean in 2020[5]. Combined, this accounts for a huge portion of global economic activity. In the United States, general purpose credit and debit card spending accounts for approximately 47 percent of nominal personal consumption expenditures, while consumption represents over two-thirds of U.S. gross domestic product (GDP)[6].

The possible shortage of chip-enabled cards also raises a host of payment safety and security concerns. Without chips, issuers may be forced to revert to issuing mag-stripe only cards, possibly reversing the gains achieved in fraud reduction in recent years and making consumer data more vulnerable. Due to the important role payment cards play in the American economy, this chip shortage could result in a disruption to American commercial activity, and the nation's continued economic recovery. For example, as state and federal governments continue to integrate debit cards for social safety net payments and various relief programs, this shortage could have the unintended consequences of disrupting the disbursement of aid to those across the country.

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

Company E: Chips are embedded in a wide range of products used for payments on our network. The secure chip performs processing functions, stores confidential information securely, and performs cryptographic processing. These capabilities provide the means for secure consumer- and business-initiated payments. In order to execute a payment, the chip must connect to a chip reader in an acceptance terminal.

These chips cards are manufactured by several companies (known as foundries), who sell them to chip solution manufacturers that add hardware (e.g., an antenna for contactless transactions) and/or software (e.g., an operating system or payment application) to produce modules for sale to card manufactures (in some cases the largest card manufacturers buy directly from the foundries). The card manufacturers embed the chip module into a plastic card and sell the finished product to issuing banks. In many cases personalization of the card (where the individual account data is encoded to the chip and magnetic stripe on the card) is also undertaken by the card manufacturer on behalf of the issuer.

We do not directly purchase semiconductor products and circuits that are necessary to manufacture chips but oversees the security and reliability of these vendor-developed products used by issuing banks and accepted merchants worldwide within our network. Oversight includes performing testing and approval of semiconductor-based products and maintenance of approved lists of products that meet our specification and requirements.

[3] Worldwide EMV Deployment Statistics. EMVCo.
[4] The 2019 Federal Reserve Payment Study. Board of Governors of the Federal Reserve System. Jan. 2020.
[5] Worldwide EMV Deployment Statistics. EMVCo.
[6] U.S. Consumer Payment Systems. Nilson Report. Dec. 2018.

c. For the semiconductor products that your organization purchases, identify those that present the greatest challenge for your organization to acquire. Then for each product, identify the product attributes and purchases in 2019 and 2021, as well as average monthly orders in 2021. Then estimate the quantity of each product your organization would purchase in the next six months barring any production constraints as well as the amount your organization expects to actually be able to purchase. For each of your organization's top semiconductor products, estimate each product's lead times and your organization's inventory for (a) 2019 and (b) currently (in days). Provide an explanation of any current delays or bottlenecks.

Company E: Chip cards rely on 65nm and 40nm based semiconductors. We understand that 65nm-based products will be become difficult to acquire in the near future. Supply constraints on 40nm products are also expected, but to a lesser extent. We have not observed any disruption the previous 12 months. Disruption will likely take the form of supplies of finished chip cards to issuing bank being later than ordered and/or in reduced quantities. Each vendor, product and issuing bank will be affected differently, but research from the Smart Payments Association estimates that anywhere from 280-540 million could fail to receive a card in 2022 if changes to the chip supply chain are not quickly implemented. [7]

Company F: The current shortages are across all chip types, the most severe are for those used in broad range of industries, especially the mature nodes/legacy technology. Lead times continue to rise even as we have been able to adjust manage the shortage. However, the bottlenecks change almost weekly, for example, if we solve the top 10 shortages and then we'll have another 10 new shortages to solve.

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

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

Company E: We have published guidance to its clients to consider deferring any activity that would require the early reissuance of cards for non-essential reasons. Nonetheless, the lack of available semiconductors could cause deferment of new product launches, rebranding and other marketing activity. Dormant accounts or accounts with minimal activity may not automatically receive a new card as the old one expires. Each year more than one-third of cards are re-issued after their expiration date or replaced in emergency when a card is lost or compromised. Retail purchases, cash withdrawals (and subsequent retail activity) and other financial activity on accounts that have not had a new card issued may reduce or halt.

Company G: This company has experienced significantly increased lead times, of 12 months and beyond. Much of semiconductor production capacity is already committed for the next 12 months, with some customer orders being delayed, canceled, and/or subject to significant price increases. As a result, this company has been forced to limit its own production, despite robust supply chain management practices designed to mitigate the downstream impact of such supply disruptions. Additionally, this company is concerned that the U.S. government may be contemplating intervention into the market, which could further compound these challenges and inject even more uncertainty into the market. This

[7] Industry Warns of Impact of Chips Shortages on Payment Card Supply. Smart Payment Association. June 2021.

company is likewise concerned that other governments may follow suit and issue competing demands on semiconductor companies' supply.

Conclusion

We appreciate the opportunity to provide feedback to the Commerce Department to inform its important ongoing work to address risks to the semiconductor supply chain. We encourage the Commerce Department and other administration stakeholders to continue engaging actively with ITI and others in the private sector, as well as with like-minded governments to identify sustainable, long-term strategies to address supply chain resiliency that rely on market-based solutions and exchange of best practices in supply chain risk management. We look forward to continuing to partner with the U.S. government to build a stronger and more resilient semiconductor supply chain. Please do not hesitate to contact us with any questions you may have about our submission.

Sincerely,

John S. Miller
Senior Vice President of Policy
and General Counsel

Alexa Lee
Senior Manager of Policy