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Comments submitted via the Federal eRulemaking Portal: http://www.regulations.gov

Eileen Albanese
Director
Office of National Security and Technology Transfer Controls
Bureau of Industry and Security
U.S. Department of Commerce
1401 Constitution Ave., NW
Washington, D.C. 20230

Subject: Implementation of Additional Export Controls on Semiconductor Manufacturing and Advanced Computing

Reference: RIN 0694-AI94– Federal Register / Vol. 87, No. 197 / Thursday, October 13, 2022/ Interim final rule

Dear Ms. Albanese:

The Computing Technology Industry Association (CompTIA),[1] the leading association for the global information technology (IT) industry, appreciates the opportunity to provide comments on the interim final rule published by BIS on advance computing, semiconductor manufacturing and end-use. Our members represent a broad range of companies from the technology industry, employing millions of Americans and supporting the U.S. economy. The regulatory changes that are the subject of this letter have a tremendous impact on the U.S. economy and everyday workers.

In general, we strongly believe that narrowly tailored, clearly defined controls would better serve important U.S. national security concerns, specifically as they relate to advanced computing technology and China's ability to bolster its military capacity. As BIS has noted several times, unilateral controls are less effective, and we continue to support BIS efforts to obtain multilateral alignment to level the playing-field, align foreign policy goals with our allies, and facilitate compliance for global companies. Below we outline several areas that could be further improved within this framework of understanding. Specifically, we point to unclear terms in the rule,

[1] CompTIA works to promote investment and innovation, market access, robust cybersecurity solutions, commonsense privacy policies, streamlined procurement, and a skilled IT workforce.

discrepancies, issues within ECCNs 4A090 and 3A090, areas for additional guidance and recommendations, licensing concerns particularly regarding deemed exports, as well as a potential format to structure the rule that would make it easier to understand.

Our members appreciated that BIS recognized that the rule warranted a separate briefing call to industry. However, given the significant breadth and operational impact of the rule, this call should have been held prior to the effective date of the rule to further bolster industry's ability to implement it on such short notice. To further understand the rule, many of our members have conducted outreach to BIS, specifically the Office of Exporter Services (OEXS) with specific questions which we will refer to later in this letter. Unfortunately, many have been met with inconsistent BIS response times and the phone number provided has reportedly gone directly to voicemail. If an OEXS staff member was reached, some members were redirected elsewhere within BIS, or an OEXS staff member advised that they had not received any briefings on the specific topic (e.g., the implementation of 744.23), which further delayed the process. While we understand that BIS is likely inundated with outreach, it also expects industry to understand, implement, and change existing compliance procedures to account for sudden operational changes within a short timeframe. As BIS states in its notice, this rule is based on important foreign policy and national security considerations, and as such, warranted clarification earlier in the process.

BIS should also consider that companies may need to hire additional skilled personnel to conduct adequate due diligence, adding to the cost and time of ensuring compliance with these controls. We point this out in the hopes that BIS can recognize the importance of being available to provide timely guidance when the effective dates require immediate implementation. In the future, BIS should consider delaying the effective date and/or issuing the rule in proposed form when its complexity clearly warrants it.

In terms of the structure of 744.23 "Supercomputer" and "semiconductor manufacturing end use", BIS should consider either separating it into at least two sections of the EAR and further specifying the criteria of the listed ECCNs. Combining the advanced semiconductor node and supercomputer end-use restrictions creates a series of cross references that are difficult to navigate because the supercomputer end-use and the advanced semiconductor node end-use restriction have different product scopes and different end-use scopes. These prohibitions would be easier to navigate if the two end-use restrictions were separate sections. Given the broad scope of 744.23(a)(2)(v), creating new subparagraphs under ECCNs 3B001, 3B002, 3B090, 3B611, 3B991 and 3B992 that identify the types of equipment that BIS intends to control rather than "catching" such a broad spectrum of semiconductor manufacturing and test equipment would also make sense. In addition, BIS could amend 744.23(a)(2)(v) to read "The "development" or "production" in the PRC of any "parts," "components," or "equipment" specified under ECCN

3B001, 3B002, 3B090, 3B611, 3B991, or 3B992 **that meet any of the criteria in paragraphs (a)(2)(iii)(A) through (C) of this section.**"

The new ECCNs highlight a problem with export control classification that was not fully addressed by the amendments to the Order of Review during the Export Control Reform process. There are several situations where an item could be described under more than one ECCN, and the resolution of such conflicts is not always clear, leading exporters to submit requests for classification rulings. In some cases, our members have reported that BIS responses to such rulings are not always consistent because of a lack of clear rules of interpretation. This is particularly apparent when it comes to the influence of encryption on the classification process. Prior to recent revisions to the encryption regulations, BIS clearly stated that encryption classifications take precedence. BIS seems to be following this approach by indicating that, for example, mass market items that meet both 3A090 and 5A992 criteria are classified as 5A992 items, but they are licensed like 3A090 items. BIS should consider issuing guidance in the form of FAQs or general and specific rules of interpretation (potentially in Part 770) like those that exist under the Harmonized System (HS), which could help resolve conflicts in classification.

I. **Terms that are unclear in the rule:**

1. **Operation**. Interpretations of the term "Operation" within Tera Operations per Second (TOPS) can vary substantially, sometimes within an individual company. For in-production items, interpretations can include every binary digit addition or multiplication being an "operation" to one Fused Multiply Accumulate of several matrices being an "operation." There is further variability based on number formats (e.g.. different implementations of many floating point, fixed point and integer formats). For futuristic designs (e.g., memristive, analog/digital hybrids, optical compute) which are R&D, interpretations vary even more widely. Some experts have argued that optical compute implementations not elsewhere specified have no inherent discrete "operation" limitations, as they can increase an expansive band of frequencies into the same device. Inconsistent interpretations can lead to unwitting non-compliance by exporters and create an unlevel playing field in the market. Furthermore, correct, and consistent interpretations of TOPS values require proprietary information from the designer or manufacturer. Even with a formal definition of "operation," the complexity of the math involved will force many exporters to rely on the designer or manufacturer to provide the final TOPS data.

2. **Technology Node**. The phrase "Technology node" which is referenced in Sections 744.6 and 744.23 does not have a consistent technical meaning and

can be referring to the smallest resolvable feature at varying fields or pitch characteristics. To illustrate the complexity of this issue, clever proprietary techniques (e.g., double patterning, multi-pass) can make equipment exclusively intended for larger features capable of producing smaller features.

3. **Facilitating.** Sections 744.6(c)(ii), (v), and (viii) use the term "facilitating," which is not defined in Part 772 or within the section, although it is also used in Section 744.6(b) with respect to other end-use restrictions. As an example, the term "facilitating" is used by the Office of Foreign Assets Control (OFAC) in several sanctions programs and has been the subject of numerous published advisory opinions, FAQs, and other guidance, due to the potential for multiple interpretations of such a broad term even though it is generally defined in the regulations. While BIS may not elect to control the same scope of activities as OFAC under the rubric of "facilitation," we recommend that BIS amend the rules to better define the term and/or issue clear guidance with respect to BIS's interpretation. Such a broad term is susceptible to a wide range of interpretations, and without clear guidance from BIS, there is a high risk of over-compliance and under-compliance with the regulations.

4. **Closely Coupled Compute Cores.** It is unclear what is meant or contemplated by "closely coupled compute cores" in Note 2 to the "Supercomputer" definition.[2]

5. **Supercomputers.** BIS should identify the items of real concern regarding the "supercomputer" end use. Hitting the threshold of "supercomputer" is not difficult, and when triggered under the new rule, even items included in 5A992 will be prohibited. That could prohibit even a standard laptop from being shipped if it is somehow being "used" in a supercomputer.

6. **Semiconductor Fabrication Facility**. BIS should clearly define which specific semiconductor facility development or production processes would be caught under this definition.

[2] *Note 2 to "Supercomputer":* Typically, a `supercomputer' is a high-performance multi-rack system having thousands of **closely coupled compute cores** connected in parallel with networking technology and having a high peak power capacity requiring cooling elements. They are used for computationally intensive tasks including scientific and engineering work. Supercomputers may include shared memory, distributed memory, or a combination of both.

II. Discrepancies and other issues within ECCNs 4A090 and 3A090:

1. **Reasons for Control.** The preamble of the Federal Register notice indicates that only Regional Stability controls should apply to the new ECCNs. However, in the revised ECCN 4E001, the statement of Reasons for Control still indicates that National Security controls apply to the entire ECCN. A new Regional Stability reason for control was added regarding technology related to the development and production of 4A090 items. To apply the correct control levels, it appears that the statement indicating that all technology in the ECCN is subject to National Security controls needs to be modified to exclude such technology.

2. **Classification of Parts.** 4A090 creates an ITAR like "see through" rule that is too broad for a civilian end item that happens to include even a single integrated circuit classified as 3A090. Consistent with Section 770.2(b)(1), computers and electronic assemblies that incorporate a single integrated circuit classified as 3A090 should be excluded from the 4A090 control if the physical incorporation is not used to evade the requirement for a license.

3. **Mass Market Encryption items.** The new rule's attempt to address the issue that some XX090 items may have encryption functionality that triggers control under 5A992 creates some difficulties in terms of application. Mass market encryption items that meet or exceed XX090 control parameters either should have a separate ECCN in Category 5, Part 2, or an additional sublevel to 5A002 or 5A992 to eliminate confusion and facilitate automation of the relevant trade controls. Further, the US Government's AES systems do not allow entry of paragraphs, only the five characters in the ECCN, so a separate ECCN would make it easier for the U.S. Government to monitor compliance and collect statistics.

4. **Aggregate Bidirectional Transfer Rate.** With respect to the "aggregate bidirectional transfer rate" provision of 3A090, we request that BIS incorporate either an additional technical note in the CCL under 3A090, or a definition of "aggregate bidirectional transfer rate" with a specific explanation of how this rate is calculated over all inputs and outputs in Part 772.

III. BIS should issue FAQs and further training/guidance due to the complexity of the new restrictions.

1. **Training.** BIS should add a dedicated training on Categories 3 and 4 like its existing seminar on encryption controls and continue publishing guidance on various aspects of the rule, some of which are noted in this comment letter. As

demonstrated by the fact that BIS has already responded to numerous FAQs within weeks of publication and the complexity of the rule, a separate forum to address industry questions and common areas of confusion would likely reduce the amount of questions BIS has received and ensure compliance with the controls.

2. **Additional Guidance.** Published guidance, whether in the form of FAQs or otherwise, specifically focused on due diligence, red flags, and known adjacent industries would be helpful because companies will be performing additional levels of due diligence specific to advanced computing and semiconductor manufacturing end-use. We also recommend a practitioners guide for TOPS and other related determinations required for classifying items under 3A090, given the lack of clarity on how to compute TOPS rating for integrated circuits and to eliminate the possibility of inconsistent interpretations.

3. We also make the following specific recommendations:

    i. End-use controls in § 744.23 should only apply to direct end use of an item. E.g.: Networking equipment used for the enterprise network of a semiconductor or supercomputer manufacturer is not a direct use in the "development," "production," "use," operation, installation (including on-site installation), maintenance (checking), repair, overhaul, or refurbishing of a "supercomputer" or integrated circuit as opposed to design software, materials, or test equipment.

    ii. Resellers of supercomputers should not meet the definition of a company that is involved in the "development," "production," "use," operation, installation (including on-site installation), maintenance (checking), repair, overhaul, or refurbishing of a "supercomputer" under § 744.23.

    iii. §744.23(a)(2)(v) should be clarified to state that the intention is to prohibit direct exports of any U.S.-origin item subject to the EAR "specially designed" for the development or production of semiconductor manufacture and testing equipment for advanced node semiconductors.

    iv. Providing general freight, telecommunications, IT or banking services should be excluded from the definition of "facilitating", especially when considering that 15 CFR § 744.6(c)(2)(viii) does not contain a

knowledge requirement and entities providing such general services would have no reason to know whether their services are being used for the transactions covered by 15 CFR §§ 744.6(c)(2)(ii), (v), and (viii).

v. 4E001 controls technology for the development, production, or ***use*** of 4A090 items, whereas the counterpart 3E001 control for 3A090 items controls only the technology for ***development*** or ***production.*** This means that the technology for the "use" of a 4A090 computer that has a 3A090 item is controlled, whereas the technology for the "use" of 3A090 integrated circuit itself is not controlled. This appears to be a mismatch in controls. We recommend that technology controls associated with 4A090 items have a separate entry that excludes "use" controls, similar to how technology for certain 4A003 items has a separate 4E control that limits the control to "production" and "development."

vi. The response to FAQ #III.Q1 indicates that deemed export licenses are required only for AT Column 1 countries and lists Iran, Syria, and North Korea. We recommend that this FAQ be amended, because it omits deemed export licensing requirements in Section 746.2(a)(2) for deemed exports of technology and source code listed on the CCL to Cuban nationals.[3]

IV. Licensing Concerns and TGL Request

1. **Deemed Exports.** Existing deemed export licenses authorizing access to any 3E991 technology should be expanded to authorize access to 3E991 technology for 3A991.p items. As BIS states in its FAQs published on October 28, "a new or additional authorization is required before that foreign person [previously authorized] can receive controlled technology or software source code different from that previously received even if the technology or software source code is classified under the same ECCN." While these are new controls, they are still AT-only controls, and if an E country foreign national has gone through the necessary background checks to be allowed

[3] "Deemed exports and deemed reexports. A license is not required to release technology or source code subject to the EAR but not on the Commerce Control List (i.e., EAR99 technology or source code) to a Cuban national in the United States or a third country."

access to different types of 3A991 technology, we see no reason why allowing access to technology related to 3A991.p items merits a new deemed export license, particularly because deemed export license processing has slowed down considerably in the past few years with many licenses taking many months to process.

2. **License Exception ENC.** The new rule's limitations on the use of License Exception ENC are difficult to implement. Many of the items affected were already eligible for License Exception ENC, so removing License Exception eligibility will be a challenge for items "listed elsewhere in the CCL which meet or exceed the performance parameters of ECCN 3A090 or 4A090." BIS should consider amending the rule to create ECCNs 5x090 and 5x092 or additional subparagraphs in existing ECCNs for 5x002 and 5x992 items that meet or exceeds the performance parameters of ECCN 3A090 or 4A090. This would allow industry to set up more manageable rules for their electronic inventory control and shipping systems.

3. **Temporary General License.** There are several U.S. and non-PRC headquartered entities whose manufacturing facilities engage the "development" or "production" in the PRC of any "parts," "components," or "equipment" specified under ECCN 3B001, 3B002, 3B090, 3B611, 3B991, or 3B992 as described in Section 744.23(a)(2)(v). Much of the equipment manufactured in these facilities is used for the development or production of EAR compliant items manufactured by U.S. and non-PRC headquartered entities. To reduce the unintended impact on such operations, we respectfully request that BIS consider issuing a temporary general license, like the TGL included in the rule for integrated circuit manufacturing, to account for the items not designed for semiconductor manufacturing and allow certain entities to continue their operations in China. Alternatively, BIS could consider limiting the end-use restrictions on exports of 3B991 to China to items capable of use in higher-end advanced node capabilities and exclude items in paragraphs of 3B991 that are not designed for semiconductor manufacturing.

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We appreciate BIS' willingness to consider industry input and continue to support its efforts in balancing U.S. national security concerns with economic competitiveness. Thank you for reviewing our comments which we hope will further refine the rule in several significant aspects.

Sincerely,

Juhi Tariq
Director
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CC: Matthew S. Borman, Deputy Assistant Secretary for Export Administration