



January 17, 2024

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

Ms. Thea D. Rozman Kendler
Assistant Secretary for Export Administration
Bureau of Industry and Security
U.S. Department of Commerce
14th Street and Constitution Avenue, NW
Washington, DC 20230

Subject: Implementation of Additional Export Controls: Certain Advanced Computing Items; Supercomputer and Semiconductor End Use; Updates and Corrections

Reference: RIN 0694–AI94 - Federal Register / Vol. 88, No. 205 / Wednesday, October 25, 2023

Dear Ms. Kendler:

The Technology Trade Regulation Alliance (TTRA) consists of small, medium, and large companies across the entire spectrum of the technology industry including software and services, hardware, semiconductors and semiconductor equipment, medical devices, sensors and instrumentation, test and measurement tools, and internet service providers. Our member companies employ millions of Americans and support the US economy in the science, technology, engineering, and manufacturing sectors, including technology that is essential to innovation. We have an Export Controls Committee that consists of over 270 compliance and policy professionals. TTRA appreciates the opportunity to provide comments on this Advanced Computing/Supercomputing Interim Final Rule (AC/S IFR).

We strongly believe that narrowly tailored, clearly defined controls and technical parameters would better protect US national security interests in hindering China's access to critical technologies that it could use to modernize its military capabilities in ways that threaten the national security interests of the United States and its allies. We also continue to support BIS's efforts to prevent or limit the further development of weapons of mass destruction, advanced weapons systems, and high-tech surveillance applications that create national security concerns. As BIS noted in the new rule, achieving these objectives requires a calibrated approach, focused on key, cutting-edge technologies that will not undermine US technology leadership or unduly interfere with commercial trade. Below we identify several areas to improve the AC/S IFR to achieve this careful balance. Specifically, we point to issues with the administrability of the controls, the potential uneven application of the new regulations by various stakeholders, and the uncertainty as to the scope of certain control language and parameters.

License Exception Notified Advanced Computing (NAC) and Datacenters

Implementation of NAC

While we appreciate BIS's willingness to authorize qualified shipments under NAC, we have

several concerns with implementation of the exception. First, NAC is not available to “items designed or marketed for use in a datacenter and meeting the parameters of 3A090.a.” This exclusion instills a subjective control for determining end use based on a company’s marketing materials. We note that there may be discrepancies amongst industry in the administrability of NAC and the decontrols on specific end uses, including how to apply a subjective control of determining the end use by marketing materials. For example, a public relations team that may not be aware of the export controls tied to marketing for datacenters could unknowingly make items subject to a higher level of export controls, even if the intended use of an item when designed by product engineers was not for use in datacenters. Conversely, companies could avoid higher levels of export controls through only marketing items for use by consumers. Therefore, we suggest that a technical parameter is more appropriate than marketing materials that may not be related to technical parameters and the effectiveness of export controls.

Second, use of NAC is dependent on the manufacturer sharing very specific technical details with customers in order for them to make a license determination and comply with the notification requirement. Manufacturers are not agreeing to release these technical details with customers. Further, the Federal Register did not indicate that these data points were required. Additionally, we acknowledge that in FAQ III.A4¹, BIS states that a company may provide authorization to allow BIS to contact the designer/manufacturer on behalf of the company to obtain the technical parameters. However, this process does not address whether an item is initially eligible for NAC and which a company will need to know prior to filing, and a designer/manufacturer may choose not to provide BIS with the technical parameters.

Third, BIS recently issued guidance that NAC applications may not include distributors with no rationale for this exclusion. Exclusion of distributors places an unreasonable burden on legitimate commercial trade, particularly items sold in the consumer market. An exporter’s distributor/reseller could be a party to the transaction and meet the end use and end-user criteria of 740.8(b) and pose no other national security risk, but the exporter would be precluded from using NAC simply because products are sold in the market through a distributor/reseller. By precluding use of the NAC exception for transactions involving distributors, BIS also eliminates its visibility of distributors in the supply chain. We suggest that BIS reverse the exclusion of distributors and require all parties to the transaction to be identified in the NAC notification.

Considerations Regarding Datacenters

Datacenter is not a defined term in the Export Administration Regulations (EAR). For consistent application of the rule, we would recommend a definition for “datacenters” in a way similar to “supercomputer” with qualitative and quantitative criteria. An EAR definition would guide industry in compliance, avoiding misses or overcontrols.

Datacenter is liberally used in the industry and marketing. There is no standard industry definition. Datacenters vary in size and type. Marketing materials frequently include datacenter in product advertisements, manuals, and brochures. Additionally, it is very common that the marketed uses in a datacenter have nothing to do with large scale AI system training. Therefore, low end GPUs may be described with reference to datacenters in marketing materials. This leads to the 3A090 capture of GPUs that are for consumer usage in media, gaming, or virtual desktops, although these GPUs are not designed or marketed for use in training large scale AI systems and

¹ Frequently Asked Questions (FAQs) for “Export Controls on Semiconductor Manufacturing Items” (SME IFR) and “Implementation of Additional Export Controls: Certain Advanced Computing Items; Supercomputer and Semiconductor End Use; Updates and Corrections” (AC/S IFR) (Dec. 29, 2023).

are not capable of being used for training large scale AI systems.

TTRA recommends BIS provide a clarification on “designed or marketed for”. Is there a difference between “designed for” and “specially designed”? If yes, what is the difference? How do we interpret “marketed for”? At what level does a product qualify as “marketed for uses in datacenters”? Something written on a company website or printed in a manual or brochure? What if nothing is written but salespeople verbally discuss various end uses with customers?

If BIS’ concern is regarding training uses in large AI systems, then BIS may specify “products designed and claimed for training uses in large AI systems”. BIS can also define the size of AI training systems. ICs for consumer products generally are designed for inference workload, not training workload. Clearly identifying uses in large AI systems for control would avoid the unintended control of mass market consumer products targeting AI inference, such as ICs used in laptops, cellphones, gaming stations, etc.

Temporary General License

End-Use Scope of TGL

The ultimate end use also raises ambiguity in the context of the Temporary General License (TGL). Given that the TGL only authorizes certain exports for purposes of not disrupting the supply chain, companies are required to know the end use of the item in order to export an item pursuant to the TGL. Subsequently authorized end-use of distribution is contradictory with the ultimate end-use requirement. We note that it is not standard practice to know the specific end use of a subset of items prior to every shipment. We suggest BIS addresses this through an FAQ. Specifically, we would suggest BIS clarifies that this TGL can be used for intra-company transfers for entities not headquartered in China, Macau or a D:5 country.

Clarification or guidance on “ultimate end use” is necessary for industry compliance. During the production stage, the final end user of each item (semifinished or finished goods) is often not precisely decided, and the ultimate end use of each item may not be known. The products may be stored in a warehouse until a purchase order is received. A company can implement compliance policies to ensure that the item will be lawfully shipped to only permitted end users with permitted end use. The lawful shipment may be granted under NAC or Export License to ultimate end users in (1) Country Groups D:1, D:4, or D:5, excluding destinations also specified in Country Groups A:5 or A:6, or (2) Country Groups D:1, D:4, or D:5, excluding destinations also specified in Country Groups A:5 or A:6. Would the possibilities of shipment under NAC or License preclude the validity of using TGL?

The description “*the recipient is located in*” is confusing and it seems that it should be deleted. For example, Vietnam is not a D:5 country. According to the writing of the rule, the export to a company located and headquartered in Vietnam is not permitted because it does not meet the condition: *when the recipient is located in but is not headquartered or whose ultimate parent company is not headquartered in Macau or Country Group D:5.*

Item and Activities Scope of TGL

Additionally, we request that BIS issue guidance on the intended scope of the new rule as it relates to the type of integrated circuit (IC) that is intended to be controlled by the technical control parameter of “performance density” in ECCN 3A090. We note that by following the calculation defined in the new rule, companies are able to manipulate the result through changing

the die area, such as through the production of chips. Therefore, we suggest that BIS issue guidance on the type of ICs that are controlled or adjust the calculation in the technical control parameter of “performance density” to better reflect the variance in IC development and production.

We also request BIS to clarify that TGL covers repair and/or replacement of controlled items. Repair or replacement of controlled items may include some, but not all the listed activities, such as inspection and testing. TGL authorizes “integration, assembly (mounting), inspection, testing, quality assurance, and distribution.” Use of “and” in this phrase suggests that all activities must be performed to qualify for TGL. If this was not BIS’s intent, we request clarity through an FAQ. Repair and/or replacement activities are important commercial services that would burden the supply chain if such activities must cease during the authorized period of continued integration and assembly operations.

Currently, if a consumer who purchased an item and returned it before the effective date of the AC/S IFR needs replacement of the now controlled item, a NAC 25-day notice is required to authorize return of the repaired item if the consumer lives in China, Macau or a D:5 country. Clarifying that TGL authorizes repair and/or replacement warranty services and may be used for in-country transfers to individual persons/consumers would eliminate a potentially large volume of NAC notifications for single, consumer transactions.

Definition of “Headquartered In”

We note the uncertainty regarding the language of “headquartered in”. Since this is not a defined term, it is unclear how to determine where a company is headquartered. For example, a company may have a parent company in one country, a principal place of business in a different country, and an ultimate beneficial owner in another country. Therefore, it is unclear how to determine which controlling entity is the headquarters for purposes of the new rule. We suggest that BIS issue a definition of “headquartered in” or guidance on how to conduct sufficient due diligence for determining a company’s headquarters and ownership structure, including detail with respect to subsidiary entities. This test should rely on quantifiable parameters so there is a consistent understanding among industry. Further, in many countries this information may not be readily or publicly available. We suggest BIS provide guidance for how to make a “headquartered in” determination where there is no such information available. We specifically recommend BIS clarifies that companies whose ultimate parent company is not headquartered in Macau or D:5 would not meet the provisions of 744.23(a)(3). BIS should also strive to continue to add any entities to the BIS Entity List.

Definition of “Supercomputer”

Note 2 to the definition of “[supercomputer](#)” characterizes supercomputers in a way that already seems to exclude commercial datacenters used by, e.g., IaaS providers or commercial internet companies. However, BIS could make this even clearer by moving this portion of the note into the main text of the definition.

One alternative would be for BIS to adjust this definition to be consistent with whatever threshold is ultimately established for reporting of compute clusters under Section 4.2(a)(ii) of Executive Order 14110 on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence.

Technical Notes to ECCN 3A090

There is uncertainty regarding the scope of the technical notes to ECCN 3A090.

3A090.

Technical Notes:

2. The rate of 'MacTOPS' is to be calculated at its maximum value theoretically possible. The rate of 'MacTOPS' is assumed to be the highest value the manufacturer claims in annual or brochure for the integrated circuit.

Is the word “annual” intended to mean “manual”? The term “manual” is described in the original October 7, 2022, rule and in the Category 4 description for APP.

3A090

Technical Notes:

4. 'Performance density' is 'TPP' divided by 'applicable die area'. For purposes of 3A090, 'applicable die area' is measured in millimeters squared and includes all die area of logic dies manufactured with a process node that uses a non-planar transistor architecture.

This note suggests that memory die should be excluded. There are different types of memory that may be present in the IC package. Heterogeneous integration offers the option to partition the functions to different chips. Memory is an integral part of the overall technology enabling compute capability. There are different types of memory playing different roles. TTRA recommends that BIS provide a clarification on the type of memory die to be excluded. Is the intention specifically to exclude HBM memory die commonly integrated into high performance GPU and AI accelerators? Or is it applicable to all kinds of memory?

This note also states that the die area excludes the die made with a planar transistor architecture. It would be clearer if the note states that both TPP and Die Area only count the die made with a non-planar transistor architecture. If we include the TPP from the die made with a planar transistor and exclude the die area from the die made with a planar transistor, then an IC made with old technologies is more likely to be caught than an IC made with new technologies. In a possible situation, an IC made with only planar transistor architectures would have a zero die area and a performance density at the infinity. We don't believe that this is the intent of this rule, but clearer writing would be helpful for compliance.

Deemed Exports and Deemed Reexports

The carveout for deemed exports on technology for 3A090 items has had a significant positive impact on US leadership in developing these chips. Executive Order 14110 on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence identified the importance of attracting non-US talent to work in AI fields in the United States, but deemed export licensing requirements would directly undermine efforts to ensure that the most talented chip developers can continue to ensure that US companies remain the leading chip developers in the world. Otherwise, such talent is likely to go to other countries, including foreign competitors and even adversaries. The practicalities of recruiting talent and obtaining deemed export licenses create severe challenges for employees and employers.

In general, the deemed export licensing experience has led to negative and counterintuitive consequences. The frequent practice of imposing overly-restrictive license conditions has led to outcomes in which licenses are granted but in practice are useless for the applicant's intended work. In several cases, deemed export licenses for non-US nationals with world-class expertise have included conditions so restrictive as to make the licenses worthless. Shortly thereafter, the same non-US nationals became US persons and were no longer subject to deemed export licensing requirements. Such a dynamic does not serve either US national security objectives or US companies' business goals, and it seems to suggest that government agencies making decisions about deemed export licenses are applying stricter criteria than the agencies making decisions to extend the broader, more significant benefits of becoming a US person.

Infrastructure as a Service (IaaS) Controls

We appreciate that BIS seeks public comments on rule changes related to cloud computing / IaaS and we appreciate that BIS has made efforts to provide clear and consistent guidelines in cloud computing and cloud based storefronts. We recommend that any new rule should avoid the approach of changes that can affect the general regulation of cloud computing and IaaS. A tailored approach to capture the end use of large scale AI training would be more effective. To do so, a clear definition of large scale AI training needs to be established.

BIS should take into account Executive Order 14110 on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence. This Executive Order (EO) establishes new requirements around reporting and identity verification of foreign purchasers of high capability US IaaS products and, as such, appears to address the risks perceived by BIS.

To avoid duplication of effort and establishment of multiple, overlapping regulations, the EO and processes for refining and implementing the regulations identified therein should be the locus of activity in regard to addressing national security concerns related to the use of IaaS products to develop large dual-use AI foundation models. It will be important, in particular, to observe and assess the implementation and operation of the EO's regulations, both in terms of any difficulties in implementation and in their effectiveness in addressing the national security concerns, before imposing new regulatory requirements with respect to the same products. That said, to the extent that there is contemplation of additional regulation in the export control space, we offer the following considerations.

Cloud Providers ordinarily do not and should not monitor their customers.

Any additional regulations in this area should take into account the significant challenges that IaaS providers would face if asked to identify whether a customer has developed a "dual-use AI foundation model." Executive Order 14110's definition of "dual-use foundation model" includes the criteria that the AI model exhibits high levels of performance at tasks that pose a serious risk to security, national economic security, national public health or safety." IaaS providers would generally lack sufficient information about and access to a customer's AI model to determine whether it exhibits such characteristics. IaaS customers typically consider information about the amounts or types of training data being used, the number of parameters, and the methods of training AI models to be sensitive, proprietary information. IaaS customers also have a strong commercial interest in limiting the ability of IaaS providers to access their customer data. This is due to a general interest in protecting sensitive corporate data as well as to potentially comply with other privacy laws and regulations.

Many factors that have been suggested as a basis for regulating models cannot be determined before training is completed.

Any regulations should also consider IaaS providers' need for clarity at the outset of providing services to a customer and avoid relying on characteristics that cannot be determined until after a model has been trained. IaaS providers—indeed, even the customers themselves—cannot be certain what levels of performance a model will exhibit at particular tasks until after training is complete. IaaS providers cannot know in advance of providing services how many operations will be used in training the customer's model. The number of chips used by the customer in training has some impact on this, but key determinative factors like training time and training efficiency are not visible to IaaS providers until after training.

Preserving the EAR's existing approach to IaaS remains essential

BIS should not abandon the 2009, 2011, and 2014 advisory opinions regarding cloud computing. The series of advisory opinions regarding cloud computing and the EAR are well-reasoned and reflect the distinct differences between interacting with hardware and software via the cloud vs owning or having physical control over the hardware or software. These opinions have enabled US leadership in IaaS and SaaS business models.

Some sources have suggested that imposing export controls on IaaS is required in order to mirror the expansion of controls on 3A090 chips and thereby close a "loophole" created by customers accessing the chips via cloud versus through physical possession. There is no such loophole.

Training large dual-use AI foundation models currently requires thousands of chips connected with highly-performant networking and supported by other specialized infrastructure, like cooling. If someone gains physical possession of a 3A090 chip, they can physically connect that chip with others to create a cluster for use in training a dual-use AI foundation model. By contrast, an IaaS customer would not have that capability. This is because the ability to utilize small numbers of 3A090 chips made available by IaaS providers does not provide customers with the ability to independently aggregate those chips into a cluster capable of training a large dual-use AI foundation model.

Moreover, as discussed above, a foreign IaaS customer using a large 3A090 run will already be subject to reporting via the mechanisms established in Section 4.2(c) of the EO. Those mechanisms should be developed, and their efficacy assessed, before any further regulatory action is undertaken.

Proposal for New License Exception for Certain Exports to Datacenters

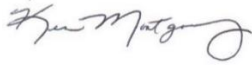
BIS should also consider a license exception for exports of 3A090, 4A090, or .z products to countries in Country Group D:1 or D:4 but not in D:5 if the export is for use in an IaaS provider's datacenter under the operational control of a US headquartered company or a company headquartered in a US-allied country.

Datacenters are highly secure facilities, and companies that maintain these datacenters have strong controls (not to mention incentives) to ensure that hardware is not removed from the premises or diverted for uses other than in providing IaaS services. Thus, exports to datacenters in these countries do not present the same risks of diversion to D:5 countries or Macau. It would be

more logically consistent to address any risks associated with the hardware under whatever framework is adopted (if any) for addressing risks associated with IaaS services for training dual-use AI models. BIS provides a similar structure for authorizing exports of certain encryption items in License Exception ENC in Part 740.17 of the EAR.

We appreciate BIS' willingness to consider industry input and continue to support its efforts in balancing US 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,

A handwritten signature in dark ink, appearing to read "Ken Montgomery". The signature is fluid and cursive, with a large, stylized "K" and "M".

Ken Montgomery
Executive Director
Technology Trade Regulation Alliance (TTRA)

cc: Matthew S. Borman, Deputy Assistant Secretary for Export Administration