

Authority: 49 U.S.C. 106(g), 40113, 44701.

§ 39.13 [Amended]

■ 2. The FAA amends § 39.13 by adding the following new airworthiness directive:

2025–03–05 Airbus Canada Limited Partnership (Type Certificate Previously Held by C Series Aircraft Limited Partnership (CSALP); Bombardier, Inc.): Amendment 39–22953; Docket No. FAA–2024–1893; Project Identifier MCAI–2023–01050–T.

(a) Effective Date

This airworthiness directive (AD) is effective March 21, 2025.

(b) Affected ADs

None.

(c) Applicability

This AD applies to Airbus Canada Limited Partnership (Type Certificate previously held by C Series Aircraft Limited Partnership (CSALP); Bombardier, Inc.) Model BD–500–1A10 and BD–500–1A11 airplanes, certificated in any category, as identified in Transport Canada AD CF–2023–68R1, dated April 30, 2024 (Transport Canada AD CF–2023–68R1).

(d) Subject

Air Transport Association (ATA) of America Code 55, Stabilizers.

(e) Unsafe Condition

This AD was prompted by reported events of annunciated horizontal stabilizer trim actuator (HSTA) jams occurring at the end of the cruise phase of flight. Investigation revealed water intrusion in the primary ball nut and/or secondary nut housing of the HSTA ballscrew assembly. The FAA is issuing this AD to address water intrusion and subsequent freezing, which causes jamming of the HSTA, resulting in the loss of pitch trim capability. The unsafe condition, if not addressed, could result in loss of control of the airplane.

(f) Compliance

Comply with this AD within the compliance times specified, unless already done.

(g) Requirements

Except as specified in paragraph (h) of this AD: Comply with all required actions and compliance times specified in, and in accordance with, Transport Canada AD CF–2023–68R1.

(h) Exceptions to Transport Canada AD CF–2023–68R1

(1) Where Transport Canada AD CF–2023–68R1 refers to “the effective date of AD CF–2023–68 (18 October 2023),” this AD requires using the effective date of this AD.

(2) Where Transport Canada AD CF–2023–68R1 refers to hours air time, this AD requires using flight hours.

(3) Where paragraph A of Part I of Transport Canada AD CF–2023–68R1 specifies an initial compliance time for performing the lubrication of the HSTA, for

this AD, the initial compliance time is at the earlier of the times specified in paragraphs (h)(3)(i) and (ii) of this AD.

(i) Within 1,100 flight hours after the effective date of this AD.

(ii) Within 12 months after the date of the most recent HSTA lubrication task, or within 5 days after the effective date of this AD, whichever occurs later.

(4) Where paragraph B of Part I of Transport Canada AD CF–2023–68R1 specifies an initial compliance time for performing the lubrication of the HSTA, for this AD, the initial compliance time is at the later of the times specified in paragraphs (h)(4)(i) and (ii) of this AD.

(i) Within 1,100 flight hours or 12 months, whichever occurs first, since the date of issuance of the original airworthiness certificate or the original export certificate of airworthiness.

(ii) Within 5 days after the effective date of this AD.

(i) Additional AD Provisions

The following provisions also apply to this AD:

(1) *Alternative Methods of Compliance (AMOCs):* The Manager, AIR–520, Continued Operational Safety Branch, FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or responsible Flight Standards Office, as appropriate. If sending information directly to the manager of the Continued Operational Safety Branch, mail it to the address identified in paragraph (j) of this AD. Information may be emailed to: AMOC@faa.gov. Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the responsible Flight Standards Office.

(2) *Contacting the Manufacturer:* For any requirement in this AD to obtain instructions from a manufacturer, the instructions must be accomplished using a method approved by the Manager, AIR–520, Continued Operational Safety Branch, FAA; or Transport Canada; or Airbus Canada Limited Partnership’s Transport Canada Design Approval Organization (DAO). If approved by the DAO, the approval must include the DAO-authorized signature.

(j) Additional Information

For more information about this AD, contact Mark Taylor, Aviation Safety Engineer, FAA, 2200 South 216th St., Des Moines, WA 98198; telephone 781–238–7229; email Mark.Taylor@faa.gov.

(k) Material Incorporated by Reference

(1) The Director of the Federal Register approved the incorporation by reference (IBR) of the material listed in this paragraph under 5 U.S.C. 552(a) and 1 CFR part 51.

(2) You must use this material as applicable to do the actions required by this AD, unless this AD specifies otherwise.

(i) Transport Canada AD CF–2023–68R1, dated April 30, 2024.

(ii) [Reserved]

(3) For Transport Canada AD CF–2023–68R1, contact Transport Canada, Transport Canada National Aircraft Certification, 159

Cleopatra Drive, Nepean, Ontario K1A 0N5, Canada; telephone 888–663–3639; email TC.AirworthinessDirectives-Consignesdenavigabilite.TC@tc.gc.ca. You may find this Transport Canada AD on the Transport Canada website at tc.canada.ca/en/aviation.

(4) You may view this material at the FAA, Airworthiness Products Section, Operational Safety Branch, 2200 South 216th St., Des Moines, WA. For information on the availability of this material at the FAA, call 206–231–3195.

(5) You may view this material at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, visit www.archives.gov/federal-register/cfr/ibr-locations, or email fr.inspection@nara.gov.

Issued on January 29, 2025.

Suzanne Masterson,

Deputy Director, Integrated Certificate Management Division, Aircraft Certification Service.

[FR Doc. 2025–02646 Filed 2–13–25; 8:45 am]

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DEPARTMENT OF COMMERCE

Bureau of Industry and Security

15 CFR Part 774

[Docket No. 250207–0014]

RIN 0694–AJ98

Implementation of Additional Due Diligence Measures for Advanced Computing Integrated Circuits; Amendments and Clarifications; and Extension of Comment Period; Correction

AGENCY: Bureau of Industry and Security, Department of Commerce.

ACTION: Correcting amendment.

SUMMARY: On January 16, 2025, BIS published in the **Federal Register** an interim final rule (IFR), “Implementation of Additional Due Diligence Measures for Advanced Computing Integrated Circuits; Amendments and Clarifications; and Extension of Comment Period” (January 16 IFR). This rule revises Export Control Classification Number (ECCN) 3A090 to correct this ECCN’s license requirement added in the January 16 IFR.

DATES:

• *Effective date:* The effective date of this rule is February 11, 2025.

• *Comment date:* Comments on the correction in this rule must be received by BIS no later than March 14, 2025.

ADDRESSES: Comments for the corrections in this rule may be submitted to the Federal rulemaking

portal at: www.regulations.gov. The www.regulations.gov ID for this IFR is BIS–2024–0055. Please refer to RIN 0694–AJ98 in all comments.

All filers using the portal should use the name of the person or entity submitting the comments as the name of their files, in accordance with the instructions below. Anyone submitting business confidential information should clearly identify the business confidential portion at the time of submission, file a statement justifying nondisclosure and referring to the specific legal authority claimed, and provide a non-confidential version of the submission.

For comments submitted electronically containing business confidential information, the file name of the business confidential version should begin with the characters “BC.” Any page containing business confidential information must be clearly marked “BUSINESS CONFIDENTIAL” on the top of that page. The corresponding non-confidential version of those comments must be clearly marked “PUBLIC.” The file name of the non-confidential version should begin with the character “P.” Any submissions with file names that do not begin with either a “BC” or a “P” will be assumed to be public and will be made publicly available at: <https://www.regulations.gov>. Commenters submitting business confidential information are encouraged to scan a hard copy of the non-confidential version to create an image of the file, rather than submitting a digital copy with redactions applied, to avoid inadvertent redaction errors which could enable the public to read business confidential information.

FOR FURTHER INFORMATION CONTACT:

- For general questions, contact Regulatory Policy Division, Office of Exporter Services, Bureau of Industry and Security, U.S. Department of Commerce at 202–482–2440 or by email: RPD2@bis.doc.gov.

- For Category 3 technical questions, contact Carlos Monroy at 202–482–3246 or by email: Carlos.Monroy@bis.doc.gov.

SUPPLEMENTARY INFORMATION: On January 16, 2025, BIS published in the **Federal Register** the IFR, “Implementation of Additional Due Diligence Measures for Advanced Computing Integrated Circuits; Amendments and Clarifications; and Extension of Comment Period” (90 FR 5298). This correction amends ECCN 3A090 to correct the license requirement.

Correction to ECCN 3A090 License Requirement Table

This rule amends ECCN 3A090 by revising the first row and column in the license requirements table. The first column of the first row of the license requirements table is revised from “RS applies to the entire entry, except 3A090.a” to read “RS applies to 3A090.a”. The regional stability section of the EAR already states the license requirements for 3A090.a in § 742.6(a)(6)(iii)(A). That provision provides that there is a worldwide license requirement for ECCN 3A090.a items. If Note 1 to 3A090.a does not apply, then the license requirements for exports, reexports, or transfers (in-country) of ECCN 3A090.a items to destinations specified in Country Groups D:1, D:4, and D:5 remain in effect with a compliance date of December 2, 2024, consistent with the FDD IFR. Any items subject to Note 1 to ECCN 3A090.a are subject to worldwide license requirements with a compliance date of January 31, 2025, consistent with the January 16 IFR.

Export Control Reform Act of 2018

On August 13, 2018, the President signed into law the John S. McCain National Defense Authorization Act for Fiscal Year 2019, which included ECRA (codified, as amended, at 50 U.S.C. 4801–4852). ECRA provides the legal basis for BIS’s principal authorities and serves as the authority under which BIS issues this rule. In particular, and as noted elsewhere, Section 1753 of ECRA (50 U.S.C. 4812) authorizes the regulation of exports, reexports, and transfers (in-country) of items subject to U.S. jurisdiction. Further, Section 1754(a)(1)–(16) of ECRA (50 U.S.C. 4813(a)(1)–(16)) authorizes, *inter alia*, the establishment of a list of controlled items; the prohibition of unauthorized exports, reexports, and transfers (in-country); the requirement of licenses or other authorizations for exports, reexports, and transfers (in-country) of controlled items; apprising the public of changes in policy, regulations, and procedures; and any other action necessary to carry out ECRA that is not otherwise prohibited by law. Pursuant to Section 1762(a) of ECRA (50 U.S.C. 4821(a)), these changes can be imposed in a final rule without prior notice and comment.

Rulemaking Requirements

1. Executive Orders 12866 and 13563 direct agencies to assess all costs and benefits of available regulatory alternatives and, if regulation is necessary, to select regulatory

approaches that maximize net benefits (including potential economic, environmental, public health and safety effects and distributive impacts and equity). Executive Order 13563 emphasizes the importance of quantifying both costs and benefits and of reducing costs, harmonizing rules, and promoting flexibility. Pursuant to Executive Order 12866, as amended, this final rule has not been determined to be a “significant regulatory action.”

2. Notwithstanding any other provision of law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with, a collection of information subject to the requirements of the Paperwork Reduction Act of 1995 (PRA) (44 U.S.C. 3501 *et seq.*), unless that collection of information displays a currently valid Office of Management and Budget (OMB) Control Number.

This rule involves the following OMB-approved collections of information subject to the PRA:

- 0694–0088, “Multi-Purpose Application,” which carries a burden hour estimate of 29.4 minutes for a manual or electronic submission;
- 0694–0096, “Five Year Records Retention Period,” which carries a burden hour estimate of less than 1 minute;
- 0694–0122, “Licensing Responsibilities and Enforcement,” which carries a burden hour estimate of 10 minutes per electronic submission;
- 0694–0137, “License Exceptions and Exclusions,” which carries a burden hour estimate of 5 minutes per electronic submission; and
- 0607–0152, “Automated Export System (AES) Program,” which carries a burden hour estimate of 3 minutes per electronic submission.

The January 16 IFR that this rule is correcting will affect the collection under control number 0694–0088, for the multipurpose application because of the increase of 375 more license applications. BIS estimates that the changes included in the January 16 IFR will result in a net increase of 375 multi-purpose applications (*i.e.*, an increase of 375 license applications) submitted annually to BIS. However, the increase in burden falls within the existing burden estimates currently associated with these control numbers.

The January 16 IFR that this rule is correcting also involves a collection previously approved by the OMB under control number 0694–0137, “License Exceptions and Exclusions” because this rule modifies two EAR license exceptions, which now include new notification and reporting requirements. Specifically, the January 16 IFR adds

two new types of requests that can be made under the existing advisory opinion process and new reporting requirements. There are two types of entities specified in Note 1 to 3A090.a that require submissions of requests to be added, modified or removed as an approved IC designer or approved “OSAT” company. These new reporting requirements related to License Exceptions ACM and AIA are specified under §§ 743.9 and new Note 1 to 3A090.a of the EAR. These changes are expected to result in an increase of 1,704 submissions related to this use of License Exceptions AIA and ACM, submitted to BIS or to other parties involved in the transaction. BIS estimates that these changes will result in an increase in burden hours of 385 hours. This collection of information fits within the scope of this information collection.

Additional information regarding these collections of information—including all background materials—can be found at: <https://www.reginfo.gov/public/do/PRAMain> by using the search function to enter either the title of the collection or the OMB Control Number.

3. This rule does not contain policies with federalism implications as that term is defined in Executive Order 13132.

4. Pursuant to Section 1762 of ECRA (50 U.S.C. 4821), this action is exempt from the Administrative Procedure Act (APA) (5 U.S.C. 553) requirements for notice of proposed rulemaking, opportunity for public participation, and delay in effective date. While Section 1762 of ECRA on its own provides sufficient authority for such an exemption, this action is also independently exempt from the same APA requirements because it involves a military or foreign affairs function of the United States (5 U.S.C. 553(a)(1)). Nonetheless, BIS is accepting comments on this IFR.

5. Because a notice of proposed rulemaking and an opportunity for public comment are not required to be given for this rule under the APA (5 U.S.C. 553) or by any other law, the analytical requirements of the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) are not applicable. Accordingly, no regulatory flexibility analysis is required, and none has been prepared.

List of Subjects in 15 CFR Part 774

Exports, Reporting and recordkeeping requirements.

For the reasons stated in the preamble, part 774 of the Export Administration Regulations (15 CFR parts 730 through 774) is corrected as follows:

PART 774—THE COMMERCE CONTROL LIST

■ 1. The authority citation for part 774 continues to read as follows:

Authority: 50 U.S.C. 4801–4852; 50 U.S.C. 4601 *et seq.*; 50 U.S.C. 1701 *et seq.*; 10 U.S.C. 8720; 10 U.S.C. 8730(e); 22 U.S.C. 287c, 22 U.S.C. 3201 *et seq.*; 22 U.S.C. 6004; 42 U.S.C. 2139a; 15 U.S.C. 1824; 50 U.S.C. 4305; 22 U.S.C. 7201 *et seq.*; 22 U.S.C. 7210; E.O. 13026, 61 FR 58767, 3 CFR, 1996 Comp., p. 228; E.O. 13222, 66 FR 44025, 3 CFR, 2001 Comp., p. 783.

■ 2. Supplement no. 1 to part 774 is amended by revising ECCN 3A090 to read as follows:

Supplement No. 1 to Part 774—The Commerce Control List

* * * * *

3A090 Integrated circuits as follows (see List of Items Controlled).

License Requirements

Reason for Control: RS, AT

Control(s)	Country chart (see Supp. No. 1 to part 738)
RS applies to 3A090.a ...	To or within any destination worldwide, see § 742.6(a)(6)(iii)(A) of the EAR.
RS applies to 3A090.b ...	To or within destinations specified in Country Groups D:1, D:4, and D:5 of supplement no. 1 to part 740 of the EAR, excluding any destination also specified in Country Groups A:5 or A:6. See § 742.6(a)(6)(iii)(B) of the EAR.
RS applies to 3A090.c ...	To or within Macau or a destination specified in Country Group D:5 of supplement no. 1 to part 740 of the EAR. See § 742.6(a)(6)(i)(B) of the EAR.
AT applies to entire entry	AT Column 1.

List Based License Exceptions (See Part 740 for a Description of All License Exceptions)

LVS: N/A

GBS: N/A

NAC/ACA: Yes, for 3A090.a, if the item is not designed or marketed for use in datacenters and has a ‘total processing performance’ of 4800 or more; yes, for 3A090.b, if the item is designed or marketed for use in datacenters. N/A for 3A090.c.

HBM: Yes, for 3A090.c. See § 740.25 of the EAR.

AIA: Yes, for 3A090.a.

ACM: Yes

LPP: Yes, for 3A090.a.

List of Items Controlled

Related Controls: (1) See ECCNs 3D001, 3E001, 5D002.z, and 5D992.z for associated technology and software controls. (2) See ECCNs 3A001.z, 5A002.z, 5A004.z, and 5A992.z.

Related Definitions: N/A

Items:

a. Integrated circuits having one or more digital processing units having either of the following:

a.1. A ‘total processing performance’ of 4800 or more; or

a.2. A ‘total processing performance’ of 1600 or more and a ‘performance density’ of 5.92 or more.

Note 1 to 3A090.a: When a “front-end fabricator” or “OSAT” company is seeking to export, reexport, or transfer (in-country) an “applicable advanced logic integrated circuit,” there is a presumption that the item is 3A090.a and designed or marketed for datacenters. If the “front-end fabricator” or “OSAT” company cannot overcome this presumption, then it must comply with all license requirements applicable to items specified in 3A090.a. However, this presumption does not apply to any entity other than the “front-end fabricator” or “OSAT” company. A “front-end fabricator” or “OSAT” company can overcome this presumption in any of the following three ways outlined in paragraphs a. through c. of this Note 1.

a. If the designer of the “applicable advanced logic integrated circuit” is an approved or authorized integrated circuit designer, then a datasheet or other attestation of the ‘total processing performance’ and the ‘performance density’ from the approved or authorized integrated circuit designer indicating that the IC is not specified in 3A090.a will overcome the presumption for the “front-end fabricator” or “OSAT” company that the IC is specified in ECCN 3A090.a.

(1) Approved integrated circuit designers are listed in supplement no. 6 to this part of the EAR;

(2) Prior to April 13, 2026, authorized integrated circuit designers include all integrated circuit designers:

(i) Headquartered in Taiwan or a destination specified in Country Group A:1 or A:5, that are neither located in nor have an ultimate parent headquartered in Macau or a destination specified in Country Group D:5 of supplement no. 1 to part 740 of the EAR; and

(ii) That have agreed to submit applicable information described in § 743.9(b) to the “front-end fabricator,” which the “front-end fabricator” must then report to BIS.

(3) After April 13, 2026, authorized integrated circuit designers include any integrated circuit designer that both meets the criteria specified in subparagraph (2) and has submitted an application to become an approved integrated circuit designer. However, any company deemed an authorized IC designer after April 13, 2026, will cease to be an authorized IC designer 180 days after the submission of its application to become an approved IC designer.

b. If the integrated circuit die is packaged by the “front-end fabricator” at a location outside of Macau or a destination specified in Country Group D:5 in supplement no. 1 to part 740, then the attestation of the “front-end fabricator” that (a) the “aggregated approximated transistor count” of the final packaged IC is below 30 billion transistors, or

(b) the final packaged IC does not contain high-bandwidth memory and that the “aggregated approximated transistor count” of the final packaged IC is below (i) 35 billion transistors for any exports, reexports, or transfers (in-country) completed in 2027; or (ii) 40 billion transistors for any exports, reexports, or transfers (in-country) completed in 2029 or thereafter, then this overcomes the presumption by the “front-end fabricator” or “OSAT” company that the IC is specified in ECCN 3A090.a.

c. If the integrated circuit is packaged by an approved “OSAT” company listed in supplement no. 7 to part 740 of the EAR, then the attestation of the approved “OSAT” company that (a) the “aggregated approximated transistor count” of the final packaged IC is below 30 billion transistors, or (b) the final packaged IC does not contain high-bandwidth memory and that the “aggregated approximated transistor count” of the final packaged IC is below (i) 35 billion transistors for any exports, reexports, or transfers (in-country) completed in 2027; or (ii) 40 billion transistors for any exports, reexports, or transfers (in-country) completed in 2029 or thereafter, then this overcomes the presumption by the “front-end fabricator” or “OSAT” company that the IC is specified in ECCN 3A090.a.

d. It is not sufficient for the “front-end fabricator” or “OSAT” company to confirm the ECCN by relying on the attestation of the end user or other party to the transaction, except under one of the three ways enumerated in paragraphs a. through c. of this note. In the absence of an attestation of the ‘total processing performance’ and the ‘performance density’ by an approved integrated circuit designer listed in supplement no. 6 to part 740 of the EAR, the “front-end fabricator” or “OSAT” company must presume that any logic integrated circuit produced using the “16/14 nanometer node” or below, or using a non-planar transistor architecture and destined for a commodity with an (a) “aggregated approximated transistor count” of the final packaged IC is below 30 billion transistors, or (b) the final packaged IC does not contain high-bandwidth memory and that the “aggregated approximated transistor count” of the final packaged IC is below (i) 35 billion transistors for any exports, reexports, or transfers (in-country) completed in 2027; or (ii) 40 billion transistors for any exports, reexports, or transfers (in-country) completed in 2029 or thereafter, or where the “aggregated approximated transistor count,” of the final, packaged integrated circuit cannot be confirmed by the “front-end fabricator,” or an approved “OSAT” company listed in supplement no. 7 to part 740 of the EAR, is specified in ECCN 3A090.a and designed or marketed for a datacenter.

Technical Note 1 to 3A090.a: The ‘approximated transistor count’ of a die is the ‘transistor density’ of the die multiplied by the area of the die measured in square millimeters. The ‘transistor density’ of the die is the number of transistors that can be fabricated per square millimeter for the process node used to manufacture the die. To calculate the number of ‘approximated transistor count’ of a die, a “front end

fabricator” or “OSAT” company has two options. First, the “front end fabricator” or “OSAT” company may take the transistor density of the process node used to manufacture the die and multiply this density by the area of the die. This number may be significantly higher than the true transistor count, but if the result is below the relevant transistor threshold, then the “front end fabricator” or “OSAT” company can be confident that the die in question will not exceed that threshold. Second, to adjudicate edge cases, the “front end fabricator” or “OSAT” company may use standard design verification tools to estimate the number of (both active and passive) transistors on the die using the GDS file.

b. Integrated circuits having one or more digital processing units having either of the following:

b.1. A ‘total processing performance’ of 2400 or more and less than 4800 and a ‘performance density’ of 1.6 or more and less than 5.92, or

b.2. A ‘total processing performance’ of 1600 or more and a ‘performance density’ of 3.2 or more and less than 5.92.

Note 2 to 3A090.a and 3A090.b: 3A090.a and 3A090.b do not apply to items that are not designed or marketed for use in datacenters and do not have a ‘total processing performance’ of 4800 or more. For 3A090.a and 3A090.b items that are not designed or marketed for use in datacenters and that have a ‘total processing performance’ of 4800 or more, see license exceptions NAC and ACA.

Note 3 to 3A090.a and 3A090.b: Integrated circuits specified by 3A090 include graphical processing units (GPUs), tensor processing units (TPUs), neural processors, in-memory processors, vision processors, text processors, co-processors/accelerators, adaptive processors, field-programmable logic devices (FPLDs), and application-specific integrated circuits (ASICs). Examples of integrated circuits are in the Note to 3A001.a.

Note 4 to 3A090.a and 3A090.b: For integrated circuits that are excluded from ECCN 3A090 under Note 2 or 3 to 3A090, those ICs are also not applicable for classifications made under ECCNs 3A001.z, 4A003.z, 4A004.z, 4A005.z, 4A090, 5A002.z, 5A004.z, 5A992.z, 5D002.z, or 5D992.z because those other CCL classifications are based on the incorporation of an integrated circuit that meets the control parameters under ECCN 3A090 or otherwise meets or exceeds the control parameters or ECCNs 3A090 or 4A090. The performance parameters under ECCN 3A090.c are not used for determining whether an item is classified in a .z ECCN. See the Related Controls paragraphs of ECCNs 3A001.z, 4A003.z, 4A004.z, 4A005.z, 4A090, 5A002.z, 5A004.z, 5A992.z, 5D002.z, or 5D992.z.

Technical Note 2 to 3A090.a and 3A090.b: 1. ‘Total processing performance’ (‘TPP’) is $2 \times \text{‘MacTOPS’} \times \text{‘bit length of the operation’}$, aggregated over all processing units on the integrated circuit.

a. For purposes of 3A090, ‘MacTOPS’ is the theoretical peak number of Tera (10^{12}) operations per second for multiply-accumulate computation ($D = A \times B + C$).

b. The 2 in the ‘TPP’ formula is based on industry convention of counting one

multiply-accumulate computation, $D = A \times B + C$, as 2 operations for purpose of datasheets. Therefore, $2 \times \text{MacTOPS}$ may correspond to the reported TOPS or FLOPS on a datasheet.

c. For purposes of 3A090, ‘bit length of the operation’ for a multiply-accumulate computation is the largest bit-length of the inputs to the multiply operation.

d. Aggregate the TPPs for each processing unit on the integrated circuit to arrive at a total. ‘TPP’ = $\text{TPP1} + \text{TPP2} + \dots + \text{TPPn}$ (where n is the number of processing units on the integrated circuit).

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. For example, the ‘TPP’ threshold of 4800 can be met with 600 tera integer operations (or 2×300 ‘MacTOPS’) at 8 bits or 300 tera FLOPS (or 2×150 ‘MacTOPS’) at 16 bits. If the integrated circuit is designed for MAC computation with multiple bit lengths that achieve different ‘TPP’ values, the highest ‘TPP’ value should be evaluated against parameters in 3A090.

3. For integrated circuits specified by 3A090 that provide processing of both sparse and dense matrices, the ‘TPP’ values are the values for processing of dense matrices (e.g., without sparsity).

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.

c. High bandwidth memory (HBM) having a ‘memory bandwidth density’ greater than 2 gigabytes per second per square millimeter.

Technical Note 1 to 3A090.c: ‘Memory bandwidth density’ is the memory bandwidth measured in gigabytes per second divided by the area of the package or stack measured in square millimeters. In the case where a stack is contained in a package, use the memory bandwidth of the packaged device and the area of the package. High bandwidth memory (HBM) includes dynamic random access memory integrated circuits, regardless of whether they conform to the JEDEC standards for high bandwidth memory (HBM), provided they have a ‘memory bandwidth density’ greater than 2 gigabytes per second per square millimeter. This control does not cover co-packaged integrated circuits with both HBM and logic integrated circuit where the dominant function of the co-packaged integrated circuit is processing. It does include HBM permanently affixed to a logic integrated circuit designed as a control interface and incorporating a physical layer (PHY) function.

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Matthew S. Borman,

Principal Deputy Assistant Secretary for Strategic Trade and Technology Security.

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