

119TH CONGRESS
1ST SESSION

S. _____

To require the Secretary of Commerce to issue standards with respect to chip security mechanisms for integrated circuit products, and for other purposes.

IN THE SENATE OF THE UNITED STATES

Mr. COTTON introduced the following bill; which was read twice and referred to the Committee on _____

A BILL

To require the Secretary of Commerce to issue standards with respect to chip security mechanisms for integrated circuit products, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Chip Security Act”.

5 **SEC. 2. SENSE OF CONGRESS.**

6 It is the sense of Congress that—

7 (1) technology developed in the United States
8 should serve as the foundation for the global eco-
9 system of artificial intelligence to advance the for-

1 eign policy and national security objectives of the
2 United States and allies and partners of the United
3 States;

4 (2) the United States can foster goodwill,
5 strengthen relationships, and support innovative re-
6 search around the world by providing allies and
7 partners of the United States with advanced com-
8 puting capabilities;

9 (3) advanced integrated circuits and computing
10 hardware that is exported from the United States
11 must be protected from diversion, theft, and other
12 unauthorized use or exploitation in order to bolster
13 the competitiveness of the United States and protect
14 the national security of the United States;

15 (4) implementing chip security mechanisms will
16 improve compliance with the export control laws of
17 the United States, assist allies and partners with
18 guarding computing hardware, and enhance protec-
19 tions from bad actors looking to access, divert, or
20 tamper with advanced integrated circuits and com-
21 puting hardware; and

22 (5) implementing chip security mechanisms may
23 help with the detection of smuggling or exploitation
24 of advanced integrated circuits and computing hard-
25 ware, thereby allowing for increased flexibility in ex-

1 port controls and opening the door for more inter-
2 national partners to receive streamlined and larger
3 shipments of advanced computing hardware.

4 **SEC. 3. DEFINITIONS.**

5 In this Act:

6 (1) APPROPRIATE CONGRESSIONAL COMMIT-
7 TEES.—The term “appropriate congressional com-
8 mittees” means—

9 (A) the Committee on Banking, Housing,
10 and Urban Affairs of the Senate; and

11 (B) the Committee on Foreign Affairs of
12 the House of Representatives.

13 (2) CHIP SECURITY MECHANISM.—The term
14 “chip security mechanism” means a software-,
15 firmware-, or hardware-enabled security mechanism
16 or a physical security mechanism.

17 (3) COVERED INTEGRATED CIRCUIT PROD-
18 UCT.—The term “covered integrated circuit prod-
19 uct” means—

20 (A) an integrated circuit classified under
21 Export Control Classification Number 3A090 or
22 3A001.z;

23 (B) a computer or other product classified
24 under Export Control Classification Number
25 4A090 or 4A003.z; or

1 (C) an integrated circuit or computer or a
2 product containing an integrated circuit or com-
3 puter that is classified under an Export Control
4 Classification Number that is a successor or
5 substantially similar to the numbers listed in
6 subparagraphs (A) and (B).

7 (4) EXPORT.—The term “export” has the
8 meaning given that term in section 1742(3) of the
9 Export Control Reform Act of 2018 (50 U.S.C.
10 4801(3)).

11 (5) IN-COUNTRY TRANSFER.—The term “in-
12 country transfer” has the meaning given that term
13 in section 1742(6) of the Export Control Reform Act
14 of 2018 (50 U.S.C. 4801(6))

15 (6) REEXPORT.—The term “reexport” has the
16 meaning given that term in section 1742(9) of the
17 Export Control Reform Act of 2018 (50 U.S.C.
18 4801(9)).

19 (7) SECRETARY.—The term “Secretary” means
20 the Secretary of Commerce.

21 **SEC. 4. REQUIREMENTS FOR SECURITY MECHANISMS FOR**
22 **EXPORT OF INTEGRATED CIRCUIT PROD-**
23 **UCTS.**

24 (a) PRIMARY REQUIREMENTS FOR CHIP SECURITY
25 MECHANISMS.—

1 (1) IN GENERAL.—Not later than 180 days
2 after the date of the enactment of this Act, the Sec-
3 retary shall require any covered integrated circuit
4 product to be outfitted with chip security mecha-
5 nisms that implement location verification, using
6 techniques that are feasible and appropriate on such
7 date of enactment, before it is exported, reexported,
8 or in-country transferred to or in a foreign country.

9 (2) NOTIFICATION REQUIREMENT.—Not later
10 than 180 days after the date of the enactment of
11 this Act, the Secretary shall require any person that
12 has received a license or other authorization under
13 the Export Control Reform Act of 2018 (50 U.S.C.
14 4811 et seq.) to export, reexport, or in-country
15 transfer a covered integrated circuit product to
16 promptly report to the Under Secretary of Industry
17 and Security, if the person obtains credible informa-
18 tion that the product—

19 (A) is in a location other than the location
20 specified in the application for the license or
21 other authorization;

22 (B) has been diverted to a user other than
23 the user specified in the application; or

24 (C) has been subjected to tampering or an
25 attempt at tampering, including efforts to dis-

1 able, spoof, manipulate, mislead or circumvent
2 location verification mechanisms or other chip
3 security mechanisms.

4 (b) DEVELOPMENT OF SECONDARY REQUIREMENTS
5 FOR CHIP SECURITY MECHANISMS.—

6 (1) ASSESSMENT.—

7 (A) IN GENERAL.—Not later than one year
8 after the date of the enactment of this Act, the
9 Secretary shall, in coordination with the Sec-
10 retary of Defense—

11 (i) conduct an assessment to identify
12 what additional mechanisms, if any, should
13 be added to the primary chip security
14 mechanisms required under subsection
15 (a)(1)—

16 (I) to enhance compliance with
17 the requirements of the Export Con-
18 trol Reform Act of 2018;

19 (II) to prevent, hinder, and de-
20 tect the unauthorized use, access, or
21 exploitation of covered integrated cir-
22 cuit products;

23 (III) to identify and monitor
24 smuggling intermediaries; and

1 (IV) to achieve any national secu-
2 rity or foreign policy objective of the
3 United States that the Secretary con-
4 siders appropriate; and

5 (ii) if the Secretary identifies any
6 such mechanism, develop requirements for
7 outfitting covered integrated circuit prod-
8 ucts with that mechanism.

9 (B) ELEMENTS.—The assessment required
10 by paragraph (1) shall include—

11 (i) an examination of the feasibility,
12 reliability, and effectiveness of—

13 (I) methods and strategies that
14 prevent the tampering, disabling, or
15 other manipulating of covered inte-
16 grated circuit products;

17 (II) workload verification meth-
18 ods;

19 (III) methods to modify the
20 functionality of covered integrated cir-
21 cuit products that have been illicitly
22 acquired; and

23 (IV) any other method the Sec-
24 retary determines appropriate for the
25 prevention of unauthorized use, ac-

1 cess, or exploitation of covered inte-
2 grated circuit products;

3 (ii) an analysis of—

4 (I) the potential costs associated
5 with implementing each method exam-
6 ined under clause (i), including an
7 analysis of—

8 (aa) the potential impact of
9 the method on the performance
10 of covered integrated circuit
11 products; and

12 (bb) the potential for the in-
13 troduction of new vulnerabilities
14 into the products;

15 (II) the potential benefits of im-
16 plementing the methods examined
17 under clause (i), including an analysis
18 of the potential increase—

19 (aa) in compliance of cov-
20 ered integrated circuit products
21 with the requirements of the Ex-
22 port Control Reform Act of 2018;
23 and

24 (bb) in detecting, hindering,
25 and preventing unauthorized use,

1 access, or exploitation of the
2 products; and

3 (III) the susceptibility of the
4 methods examined under clause (i) to
5 tampering, disabling, or other forms
6 of manipulation; and

7 (iii) an estimate of the expected costs
8 to implement at-scale methods to tamper
9 with, disable, or manipulate a covered inte-
10 grated circuit product, or otherwise cir-
11 cumvent the methods examined under
12 clause (i).

13 (2) REPORT TO CONGRESS.—

14 (A) IN GENERAL.—Not later than one year
15 after the date of the enactment of this Act, the
16 Secretary, in coordination with the Secretary of
17 Defense, shall submit to the appropriate con-
18 gressional committees a report on the results of
19 the assessment required by paragraph (1), in-
20 cluding—

21 (i) an identification of the chip secu-
22 rity mechanisms, if any, to be included in
23 the requirements for secondary chip secu-
24 rity mechanisms; and

1 (ii) if applicable, a roadmap for the
2 timely implementation of the secondary
3 chip security mechanisms.

4 (B) FORM.—The report required by para-
5 graph (1) shall be submitted in unclassified
6 form, but may include a classified annex.

7 (3) IMPLEMENTATION.—

8 (A) IN GENERAL.—If any mechanisms are
9 determined by the Secretary to be appropriate,
10 the Secretary shall, not later than 2 years after
11 the date on which the Secretary completes the
12 assessment required by paragraph (1), require
13 any covered integrated circuit product to be
14 outfitted with the secondary chip security mech-
15 anisms identified pursuant to paragraph (1)(A)
16 before the product is exported, reexported, or
17 in-country transferred to or in a foreign coun-
18 try.

19 (B) PRIVACY.—In implementing require-
20 ments for secondary chip security mechanisms
21 under subparagraph (A), the Secretary shall
22 prioritize confidentiality.

23 (c) ENFORCEMENT AUTHORITY.—In carrying out
24 this section, the Secretary may—

1 (1) verify, in a manner the Secretary deter-
2 mines appropriate, the ownership and location of a
3 covered integrated circuit product that has been ex-
4 ported, reexported, or in-country transferred to or in
5 a foreign country;

6 (2) maintain a record of covered integrated cir-
7 cuit products and include in the record the location
8 and current end-user of each such product; and

9 (3) require any person who has been granted a
10 license or other authorization under the Export Con-
11 trol Reform Act of 2018 to export, reexport, or in-
12 country transfer a covered integrated circuit product
13 to provide the information needed to maintain the
14 record.

15 (d) ANNUAL ASSESSMENT AND REPORT ON NEW
16 CHIP SECURITY MECHANISMS.—Not later than 2 years
17 after the date of the enactment of this Act, and annually
18 thereafter for 3 years, the Secretary shall—

19 (1) in coordination with the Secretary of De-
20 fense, conduct an assessment of new chip security
21 mechanisms that have been developed in the year
22 preceding the date of the assessment; and

23 (2) submit to the appropriate congressional
24 committees a report that includes—

1 (A) a summary of the results of the assess-
2 ment required by paragraph (1);

3 (B) an evaluation of whether any of the
4 new mechanisms assessed under paragraph (1)
5 should be added to or replace any of the exist-
6 ing requirements for secondary chip security
7 mechanisms developed under subsection (b)(1);
8 and

9 (C) any recommendations for modifications
10 to relevant export controls to allow for more
11 flexibility with respect to the countries to or in
12 which covered integrated circuit products may
13 be exported, reexported, or in-country trans-
14 ferred if the products include chip security
15 mechanisms that meet the requirements devel-
16 oped under subsection (b)(1).