

U.S. Commerce Department issues semiconductor-related export controls

By Anthony Rapa, Esq., and Matthew J. Thomas, Esq., Blank Rome LLP

OCTOBER 7, 2022

On August 15, 2022, the U.S. Department of Commerce's Bureau of Industry and Security (BIS) issued an interim final rule¹ imposing new export controls relating to certain semiconductor technology.

The Bureau of Industry and Security sent letters to chipmaking equipment manufacturers directing them not to export to China equipment capable of fabricating chips at 14 nanometers and below.

Specifically, the rule establishes a requirement under the Export Administration Regulations² (EAR) to obtain a license from BIS before exporting to certain destinations the following materials and technologies:

- Substrates of gallium oxide and diamond (ultra-wide bandgap semiconductors); and
- Electronic Computer Aided Design (ECAD) software for the development of integrated circuits with Gate All-Around Field Effect Transistor (GAAFET) structures.³

The control for the specified substrates is effective Aug. 15, 2022, while the control for the ECAD/GAAFET software is effective Oct. 14, 2022, with a comment period for industry that ran through Sept. 14, 2022.

The rulemaking follows public reports in July 2022⁴ indicating that BIS had sent letters to chipmaking equipment manufacturers directing them not to export to China equipment capable of fabricating chips at 14 nanometers and below.

Background

U.S. competitiveness in semiconductor manufacturing continues to be an area of unique focus for U.S. trade and broader economic policy. In August 2022, President Biden signed a rare example of bipartisan industrial policy legislation, the CHIPS and Science Act of 2022,⁵ a \$280 billion package to support domestic semiconductor

manufacturing capabilities and related advanced technology development programs.

In so doing, the White House noted that the U.S. share of global semiconductor manufacturing has fallen from 40% over 30 years ago to 10% today,⁶ a trend the Biden Administration appears committed to reversing.

Additionally, policymakers are concerned with potential military or illicit applications of emerging semiconductor technologies, a consistently stated position that has animated previous export controls in this context.

Summary of new export controls

Ultra-wide bandgap semiconductors and ECAD software for GAAFET

As a result of the new controls issued on Aug. 15, unless an exception applies, the specified items are subject to export licensing requirements as follows:

- A license will be required to export gallium oxide and diamond substrates and ECAD/GAAFET software to destinations subject to "NS:2" controls, including China.
- Technology for the development or production of the specified substrates is subject to restrictive "NS:1" controls, meaning there is an export licensing requirement for every destination in the world other than Canada.

The White House noted that the U.S. share of global semiconductor manufacturing has fallen from 40% over 30 years ago to 10% today.

It should be noted that while the rule establishes an export licensing requirement as described above, depending on the circumstances of a particular export, a license exception may be available.

Notably, the new export controls are multilateral controls to which the 42 countries comprising the Wassenaar Arrangement (WA) agreed at the WA plenary meeting in December 2021. While BIS

typically implements WA controls a year or more after the WA plenary, BIS explained that it considers the above technologies to be “emerging and foundational technologies” that are particularly significant to national security, and thus warranting prioritized controls.

The newly controlled technologies have potential military applications, given their enhanced performance and ability to withstand severe conditions.

Along these lines, BIS explained in a press release⁷ that the newly controlled technologies have potential military applications, given their enhanced performance and ability to withstand severe conditions.

Specifically, BIS noted that:

- Gallium oxide and diamond enable semiconductors to operate at higher voltages and higher temperatures.
- GAAFET technology is key to scaling semiconductor production at 3 nm and below, with potential radiation-tolerant capability and applications in defense and communications satellites.

The restrictions apply to equipment for the fabrication of logic chips, but not memory chips, and accordingly are directed at foundries.

Overall, the new rule is notable as a use of BIS’s power to impose controls over “emerging and foundational technologies” (described by BIS as Section 1758 technologies⁸) under the Export Control Reform Act of 2018,⁹ and reflects BIS’s continuing focus on technologies with potential military applications. While BIS has the power to impose these controls unilaterally, in this case they came about through a multilateral process.

Chipmaking equipment for 14 nm and below

In July 2022, media reports indicated that BIS had sent letters to manufacturers of chipmaking equipment capable of fabricating chips at the 14 nm node and below, informing them that BIS was restricting exports of such equipment to China.¹⁰

The BIS letter has not been made public, although presumably it was what is known as an “is informed” letter, whereby BIS informs a party that exports of a particular item present an “unacceptable risk” of diversion to a military end-use or other illicit use of the item.

BIS has not made public the precise parameters of the restrictions, which will remain specific to the recipients of the letter unless BIS chooses to issue a public rule by publishing it in the *Federal Register*. Notably, public reporting indicates that the restrictions apply to equipment for the fabrication of logic chips, but not memory chips, and accordingly are directed at foundries.

Jurisdictional reach of U.S. export controls

The following items are subject to U.S. export control jurisdiction under the EAR:

- Items located in the United States;
- U.S.-origin items, wherever located;
- Non-U.S.-origin items incorporating more than a “de minimis” level of controlled U.S. content; and
- Non-U.S.-origin items that are the “direct product” of certain U.S. technology.

Compliance tips for companies

Companies dealing in the subject items should be mindful of the following:

- A BIS license may be required prior to any export of the above items.
- The licensing requirement applies not only to physical exports of tangible items, but also to electronic transmissions of technology or software, and to the release of technology or source code (in the case of the ECAD/GAAFET software) to non-U.S. nationals in the United States, which could impact a company’s R&D process.
- The export controls apply not only to exports out of the United States, but also to dealings in U.S.-origin items, wherever located in the world, and even certain **non-U.S.** items incorporating U.S. content or derived from U.S. technology.
- Where a licensing requirement applies, a company should assess whether a license exception is available.

Notes

¹ 87 Fed. Reg. 49,979 (Aug. 15, 2022).

² 15 C.F.R. Parts 730-774.

³ The rule also imposed export controls on pressure gain combustion technology for the production and development of gas turbine engine components or systems.

⁴ <https://bloom.bg/3SGn0TL>.

⁵ Pub. L. No. 117-167.

⁶ <https://bit.ly/3MduKdE>.

⁷ <https://bit.ly/3CJ3Qra>.

⁸ 87 Fed. Reg. 31,195 (May 23, 2022).

⁹ 50 U.S.C. §§ 4801-4852.

¹⁰ <https://bloom.bg/3SGn0TL>; <https://bit.ly/3Vc6KLV>.

About the authors



Anthony Rapa (L) is a partner at **Blank Rome LLP** and leads the firm's national security team. A dual U.S./U.K.-qualified practitioner, he advises clients on international risk matters in the context of cross-border trade, operations and investments, including economic sanctions, export controls, supply chain security and foreign investment reviews. He can be reached at anthony.rapa@blankrome.com. **Matthew J. Thomas (R)** is an international trade partner with the firm. With more than 25 years of experience, he focuses his practice on international trade, transport and maritime regulation, and government affairs, and works extensively with international trade sanctions, export controls, and related anti-money laundering measures. He can be reached at matthew.thomas@blankrome.com.

This article was first published on Westlaw Today on October 7, 2022.