Congress of the United States
Washington, DC 20510

April 13, 2021

The Honorable Gina Raimondo
Secretary
Department of Commerce
1401 Constitution Ave NW
Washington, DC 20230

Dear Secretary Raimondo,

We write to urge you to designate electronic design automation (EDA) tools as a foundational technology and require a license for all end-users under the ownership, influence, or control of the People's Republic of China (PRC). There is clear evidence that companies linked to the Chinese Communist Party (CCP) are using this software technology to develop advanced weaponry.

According to a recent report by *The Washington Post*, sophisticated U.S. EDA software was sold to an ostensibly civilian PRC company, Phytium Technology. Phytium then used this software to design advanced semiconductor chips for supercomputers at a hypersonic weapons research and testing facility run by the People's Liberation Army (PLA). This facility, the China Aerodynamics Research and Development Center (CARDC), has been on the Commerce Department's Entity List for more than two decades. Despite Phytium's deep ties to PRC military research and its sales to the CARDC, Phytium was only added to the Entity List after *The Washington Post* report. We find it deeply troubling that the Department of Commerce allowed such a critical U.S. technology to be harnessed to design weapons targeting American servicemembers operating in the Indo-Pacific.

As you know, the CCP is executing a strategy called "Military-Civil Fusion" (MCF), which seeks to eliminate the distinction between its defense and civilian sectors. The goal of this strategy is to ensure that the PLA can rapidly develop and field cutting-edge military platforms. MCF is unfortunately turning the Chinese economy into a military-driven ecosystem that is centrally coordinated by the CCP. As a result, many American and other non-PRC businesses are knowingly or unknowingly exporting sensitive technologies that are promptly handed over to the PRC's military or intelligence services.

This recent Phytium example is not the first time that a PRC military company has been documented relying on U.S. EDA tools to design advanced semiconductors. In 2020, Commerce took the decisive step of effectively banning the export of EDA tools to HiSilicon, a Huawei subsidiary that designs their advanced semiconductors. This ban on exports of EDA tools to Huawei was intended to impede HiSilicon's ability to design semiconductors that are used to further the CCP's ambitions of dominating global 5G telecommunications networks.

Current policy has done little to restrict other PRC companies from buying EDA software licenses from the two U.S. suppliers that dominate the global EDA market, Cadence and Synopsys. According to reports, hundreds of companies run by PRC regional governments poured investments into fabless semiconductor producers, and many of these entities mass purchased EDA software licenses from these two U.S. companies. This has contributed to significant sales growth of EDA tools in China by Cadence and Synopsys. Synopsys even hosted a design training session at the PLA National University of Defense and Technology on integrated circuit and field programmable gate array semiconductors, with clear military applications.

The U.S. government's recent strategy against Huawei and Phytium's sale to CARDC demonstrates the distinct drawbacks of an end-user-based approach to export controls when dealing with the CCP. It must be presumed that any PRC company that accepts state-directed investments to purchase semiconductor technologies, including EDA software licenses, could be coerced or induced into assisting the PRC's military. The export of advanced dual-use U.S. technology to any PRC entity is effectively a direct delivery to the PLA. Our export control system should reflect this reality.

Accordingly, we urge you to take the following actions to ensure U.S. companies as well as those from partner and allied countries are not permitted to sell the communists the rope they will use to hang us all.

1. While we support reports that the Department of Commerce is placing Phytium on the Entity List—we hope with a licensing policy of a presumption of denial—the Commerce Department must supplement this action with a Foreign-Direct Product Rule (FDPR) Footnote number 1. An entity listing would restrict sales of EDA tools to Phytium, but a FDPR Footnote number 1 would require any fab that uses American tools to obtain a Bureau of Industry and Security (BIS) license to fabricate a Phytium-designed semiconductor chip. Anything short of using the FDPR would be a half measure masquerading as a forceful action.

2. The Department of Commerce should immediately designate EDA software as a Foundational Technology, which would require all U.S. EDA companies to get a BIS license before exporting any product to the PRC. The Department of State and Commerce should also propose similar controls at the Wassenaar Arrangement.

3. BIS should also develop a FDPR Footnote number 1 that applies to any PRC company designing semiconductor chips at or below 14nm. This would ensure that no fab with American tools could make a 14nm-or-below chip for any PRC company without first obtaining a BIS license.

4. The Department of State and Commerce must engage the Taiwanese government to develop a more effective end-user screening system to mitigate the risk of Taiwanese companies providing services and technologies to entities of concern. It is not in the security interests of Taiwan or the United States for companies like Taiwan Semiconductor Manufacturing Corporation to make advanced semiconductor chips for the PLA.

Thank you for considering this important matter of national security. We look forward to hearing from you.

Sincerely,

Tom Cotton
United States Senator

Michael T. McCaul
Member of Congress

CC: Antony Blinken, Secretary of State
        Lloyd Austin, Secretary of Defense
        Jake Sullivan, Assistant to the President for National Security Affairs