

# Congress of the United States

Washington, DC 20515

November 28, 2023

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

The Honorable Lloyd Austin  
Secretary  
U.S. Department of Defense  
1400 Defense Pentagon  
Washington, DC 20301

The Honorable Janet Yellen,  
Secretary  
Department of the Treasury  
799 9<sup>th</sup> St SW  
Washington, DC 20001

Dear Secretary Raimondo, Secretary Yellen, and Secretary Austin,

As the Chairman and the Ranking Member of the House Select Committee on Strategic Competition between the United States and the Chinese Communist Party (CCP), we write to request you investigate all People's Republic of China (PRC) Light Detection and Ranging (LiDAR) technology companies on whether their activities justify inclusion on the Defense Department's Chinese Military Companies List, Commerce's Bureau of Industry and Security Entity List, and Treasury's Non-SDN Chinese Military-Industrial Complex Companies List.

LiDAR is a critical technology used in autonomous systems and robotics but is currently not subject to U.S. export controls or government procurement restrictions, which raises several concerns. Given the importance of LiDAR, it is crucial to ensure U.S. technology used in foreign LiDAR systems are not being leveraged by our adversaries to create autonomous military vehicles and weapons. Urgent action is also needed to stop LiDAR produced by state-backed entities from foreign adversary countries to proliferate in the U.S. market or gain access to U.S. capital markets or U.S. critical infrastructure systems. Finally, because the U.S. government currently has no security requirements for the procurement of LiDAR technology, there is significant risk that PRC-made LiDAR are already present in U.S. defense systems and platforms that the U.S. military and its contractors are unaware of.<sup>1</sup>

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<sup>1</sup> LiDAR systems specially designed for a military end user are subject to International Traffic in Arms Regulations (ITAR) controls. However, ITAR controls would not address commercial and dual-use concerns about access to sensitive U.S. information and the return of data to the PRC. See:

LiDAR is an emerging, dual-use, remote sensing technology used in military, transportation, agriculture, weather, manufacturing, and other systems. It uses pulsed laser light to measure the distance, speed, and/or altitude of physical objects to map the surrounding environment. The technology is crucial for creating high-definition maps around autonomous vehicles, raising serious national security concerns related to data security, cybersecurity, and exquisite mapping of U.S. infrastructure. LiDAR is also being deployed in “smart cities” on critical U.S. infrastructure, including traffic signals, ports and drawbridges.<sup>2</sup> There is a serious national security risk that under the PRC’s National Security Law, all PRC LiDAR companies must provide any available data collected by their products and systems to the CCP, when required. This means that the CCP could potentially access troves of data on not only U.S. mapping and infrastructure, but also on U.S. military systems, or introduce malware via software updated that could degrade the performance of U.S. systems relying on PRC LiDAR.<sup>3</sup>

Up until 2018, the global LiDAR market was dominated by U.S. companies, but PRC LiDAR companies are advancing quickly due to the support of CCP industrial policies, including tariffs and subsidies. Furthermore, PRC LiDAR firms have benefited from access to the U.S. capital markets and technology through investments in and acquisitions of American LiDAR businesses, combined with allegations of IP theft.<sup>4</sup> The PRC considers LiDAR a strategic technology and has called for its development for use in national security and in military industries. Today, a single PRC company Hesai Technology has 47% of the global market share by sales revenue.<sup>5</sup> Many PRC LiDAR companies have ties to the Chinese military that are of grave national security concern. For example, Hesai is reportedly tied to the military’s China Electronics Technology Group Corporation (CETC), a state-owned entity that is a key player in advancing the PRC’s military civil fusion program.<sup>6</sup> CETC is also on the DoD’s Chinese Military Companies List, and some parts of CETC and its institutes are on the BIS Entity List. Another PRC LiDAR company, Robosense, has ties to the Harbin Institute of Technology, a PRC military university. Other PRC companies that are already on multiple U.S. government blacklists have also started their own LiDAR companies, including DJI’s Livox Technology and Huawei. Furthermore, PRC LiDAR is being used for surveillance in the Xinjiang Uyghur Autonomous Region (XUAR) where the CCP has engaged in the oppression of the Uyghur population.<sup>7</sup>

Most commercial LiDAR sensors require Field Programmable Gate Array (FPGA) semiconductor chips to work. These chips can be configured to perform complex operations such

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<https://www.federalregister.gov/documents/2016/10/12/2016-24225/amendment-to-the-international-traffic-in-arms-regulations-revision-of-us-munitions-list-category>

<sup>2</sup> “Chattanooga building out ‘smart intersection network,’” Smart City Dive, January 6, 2023, See:

<https://www.smartcitiesdive.com/news/chattanooga-smart-city-intersections-lidar-seoul-robotics-usdot/639799/>

<sup>3</sup> “U.S.-China Competition in Emerging Technologies: LiDAR,” Congressional Research Service, August 14, 2023, See: <https://crsreports.congress.gov/product/pdf/IF/IF12473> (hereinafter “LiDAR CRS Report”)

<sup>4</sup> LiDAR CRS Report at pages 1-2.

<sup>5</sup> “Revolutionizing the Automotive Landscape: LIDAR Integration Soars as Chinese OEMs Take the Lead, Expected to Reach \$4.8B by 2028,” Yole Intelligence, 2023 LiDAR Industry Report, See:

<https://www.yolegroup.com/product/report/lidar-for-automotive-2023/>

<sup>6</sup> LiDAR CRS Report at page 2.

<sup>7</sup> “Driverless police surveillance cars hit streets of Xinjiang’s Karamay,” Radio Free Asia, July 14, 2022. See: <https://www.rfa.org/english/news/uyghur/driverless-cars-07142022172350.html>

as image processing and digital signal processing, frequently used in robotics, automotive products, wireless communications, and aerospace and defense applications. While FPGAs with more than 700 digital input/outputs are controlled by BIS, FPGA chips typically used in LiDAR systems have a lower digital input/output and are not currently subject to export controls. Currently, two U.S. companies, Xilinx Inc. and Altera Corporation control most of the global FPGA market. Thus, PRC LiDAR companies rely on U.S. FPGAs to build their systems, and it is concerning that there are currently U.S. components that are potentially being used in the PRC military's autonomous vehicle systems. Increased scrutiny is required to ensure American LiDAR technologies are not advancing PRC weapons platforms or surveillance systems used to facilitate human rights abuses.

Due to these critical national security threats, we urge you to investigate the PRC LiDAR industry for entities that should be included in your agency's respective lists and whether specific U.S. technologies should be subject to export controls to the PRC. Finally, as steps are taken to address PRC LiDAR companies' activities and partnerships in the United States, we believe it is also imperative to require more transparency in our defense industrial base and related supply chains to identify whether PRC-made LiDAR products are embedded in our defense platforms.

The House Select Committee on the Strategic Competition Between the United States and the Chinese Communist Party has broad authority to "investigate and submit policy recommendations on the status of the Chinese Communist Party's economic, technological, and security progress and its competition with the United States" under H. Res. 11.

Thank you for your work and expediency on these issues. We look forward to working with you to further protect our nation's national security.

Sincerely,



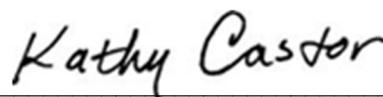
Mike Gallagher  
Chairman



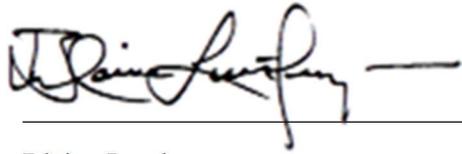
Raja Krishnamoorthi  
Ranking Member



Rob Wittman  
Member of Congress



Kathy Castor  
Member of Congress



Blaine Luetkemeyer  
Member of Congress



Seth Moulton  
Member of Congress



Dan Newhouse  
Member of Congress



Mikie Sherrill  
Member of Congress



John Moolenaar  
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Bill Pascrell  
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Neal Dunn  
Member of Congress



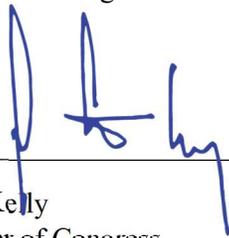
Jim Banks  
Member of Congress



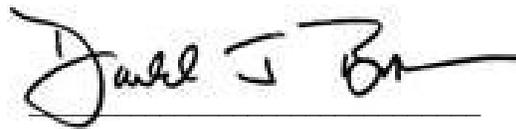
Dusty Johnson  
Member of Congress



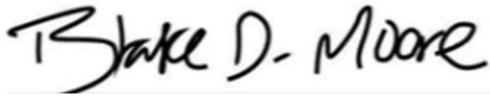
Carlos Gimenez  
Member of Congress



Trent Kelly  
Member of Congress



Don Bacon  
Member of Congress



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Blake Moore  
Member of Congress



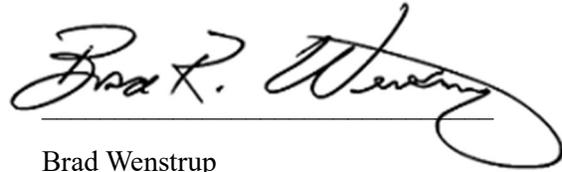
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Elise Stefanik  
Member of Congress



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Ben Cline  
Member of Congress



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Brad Wenstrup  
Member of Congress

CC:

The Secretary of State, The Honorable Antony Blinken  
The Secretary of Energy, The Honorable Jennifer Granholm