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September 24, 2024

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

Dear Secretary Austin,

I write to draw your attention to the U.S. national security risk posed by the People's Republic of China's (PRC) growing domination of the global display industry and to request that you place two PRC national champion display companies—BOE Technology Group Co., Ltd. (BOE) and Tianma Microelectronics Co., Ltd. (Tianma)—on the U.S. Department of Defense's Chinese Military Companies List (also referred to as the 1260H List). While commonly associated with civilian applications such as televisions, displays are increasingly playing a role in many of our advanced weapon systems, from Javelin missiles to drones. If the United States was to find trade with the PRC disrupted, production of many of these systems would halt. As such, the Department of Defense needs a plan to quickly reduce reliance on the PRC in display technology.

The PRC engages in aggressive state-sponsored subsidization of the two primary display technologies: liquid crystal display (LCD) and organic light-emitting diode (OLED) display. By doing so, it drives non-PRC companies from the market and bolsters PRC dominance of the industry. In LCD, the industry's legacy technology, the PRC's share of global production capacity has grown from 0% in 2004 to 72% today, and non-PRC manufacturers are rapidly exiting the market due to their inability to compete.¹ The U.S. Department of Commerce and the U.S. Department of Homeland Security determined the cause in a February 2022 report: PRC state subsidies. As they explain:

¹ Anton Shilov, "JOLED Files for Bankruptcy: Set to Transfer OLED IP to JDI and Close Down Two Plants," *AnandTech*, March 28, 2023, <https://www.anandtech.com/show/18796/joled-files-for-bankruptcy-set-to-transfer-oled-ip-to-jdi-and-close-down-two-plants>.

[The PRC] supported the growth of its LCD industry by providing government subsidies and reduced taxes to domestic display manufacturers. As a result, most Chinese LCDs are sold below cost and there is no cost-effective way to diversify production out of [the PRC] . . . Buttressed by [the PRC] government non-market policies and practices, Chinese firms dominate the industry while their competitors struggle to compete with their artificially low-priced products².

A similar evolution is now underway in OLED, the current generation of display technology; the PRC's share of global production capacity has grown from 1% in 2014 to 51% today. Most alarmingly, the PRC is beginning its domination of the next generation of display technology, called "micro-display," which is a necessary input in the visualization of augmented reality (AR) and virtual reality (VR). 90% of global capital expenditures in micro-display technology are being made by PRC companies and the PRC government. As the trend persists, U.S. advancement in cutting-edge military technology, particularly that which uses AR or VR, will be beholden and susceptible to our foremost foreign adversary.

BOE and Tianma are the principal beneficiaries of the PRC's anticompetitive trade practices in the display industry.³ -According to publicly-available shipment data, while the two companies accounted for just 11% of global OLED shipments for smartphones two years ago⁴, today their market share has grown to 28%. Further, these two companies today account for 48% of global shipments of LCD smartphone screens.⁵ They enjoy subsidies that grant land and capital to cover 50-70% of their investment costs, zero or below-market interest government loans, R&D subsidies, reduced corporate taxes, and purchase subsidies of up to 20% paid to domestic buyers of their products. BOE's subsidies alone equaled \$283 million in 2019.⁶ Moreover, they may have benefitted from intellectual property theft to spur their rise—a Financial Times investigation found that PRC entities stole more technology from South Korea's display sector than from any other Korean industry, apart from semiconductors, between 2016 and 2023.⁷

² "Assessment of the Critical Supply Chains Supporting the U.S. Information and Communications Technology Industry," *U.S. Departments of Commerce and Homeland Security*, February 24, 2022, https://www.dhs.gov/sites/default/files/2022-02/ICT%20Supply%20Chain%20Report_2.pdf.

³ Ibid.

⁴ "Smartphone Display Shipment & Price Tracker – January 2024 Analysis", *OMDIA*, <https://omdia.tech.informa.com/om120122/smartphone-display-shipment--price-tracker--january-2024-analysis>

⁵ "Smartphone Display Shipment & Price Tracker – December 2023 Analysis", *OMDIA*, February 4, 2024, <https://omdia.tech.informa.com/om120125/smartphone-display-shipment--price-tracker--december-2023-analysis>.

⁶ Cheng Ting-Fang et al., "Apple puts China's BOE to test for cutting-edge iPhone screens," *Nikkei Asian Review*, August 21, 2019, <https://asia.nikkei.com/Business/China-tech/Apple-puts-China-s-BOE-to-test-for-cutting-edge-iPhone-screens>.

⁷ Christian Davies and Song Jung-a, "Samsung and LG join forces against Chinese rivals in battle for display dominance," *Financial Times*, February 21, 2024, <https://www.ft.com/content/ac590d5c-dd22-49cd-93cf-42fe3f08b110>.

Most alarmingly, both companies are tied to the People's Liberation Army (PLA) and support its efforts. Tianma is identified by the U.S. Department of State as a subsidiary of the Aviation Industry Corporation of China (AVIC).⁸ AVIC, the principal producer of advanced fighter jets for the PLA, is listed on the 1260H List, as well as the NS-CMIC List maintained by the U.S. Department of the Treasury. Five other AVIC affiliates have been designated to the 1260H List, while fourteen other AVIC affiliates have been designated to the NS-CMIC List. Five AVIC affiliates have also been designated to the Commerce Department's Entity List. Tianma's absence from all these lists is conspicuous. BOE was initially founded in 1993 as a military and defense supplier,⁹ and it is integrated as at least a subprime contractor for the PLA; many of its customers are known PLA suppliers, such as HiSense.¹⁰

Moreover, the two companies operate out of a military-civil fusion (MCF) enterprise zone in the PRC. The Chengdu Hi-Tech Industrial Development Zone, located in Sichuan province, houses both a \$8.8 billion OLED production line for BOE and the production facilities for one of Tianma's largest subsidiaries, Chengdu Tianma Microelectronics Co., Ltd.¹¹ It is also an MCF enterprise zone as defined by Section 1260H(d)(2) of the National Defense Authorization Act for Fiscal Year 2021. The Development Zone's Economic and Informatization Office lists "military-civilian fusion" as one of its core responsibilities.¹² Additionally, MCF enterprise zones generally have a state-owned defense enterprise as an "anchor."¹³ The Chengdu Hi-Tech Industrial Development Zone touts Huawei as a key contributor and partner, and the

⁸ Under Secretary for Economic Growth, Energy, and the Environment, "Communist Chinese Military Companies Listed Under E.O. 13959 Have More Than 1,100 Subsidiaries," *U.S. Department of State*, January 14, 2021, <https://2017-2021.state.gov/communist-chinese-military-companies-listed-under-e-o-13959-have-more-than-1100-subsidiaries/>.

⁹ Ting-Fang, "Apple puts China's BOE to test."

¹⁰ Artem Alekseenko, "UDE Shanghai Highlights Hisense Dual Cell TV U9E," *DisplayDaily*, July 16, 2019, <https://displaydaily.com/ude-shanghai-highlights-hisense-dual-cell-tv-u9e/>; Margarita Konaev et al., "U.S. and Chinese Military AI Purchases: An Assessment of Military Procurement Data between April and November 2020," *Center for Security and Emerging Technology*, August 2023, <https://cset.georgetown.edu/wp-content/uploads/CSET-U.S.-and-Chinese-Military-AI-Purchases-1.pdf>

¹¹ Huang Zhiling and Peng Chao, "Chengdu gets BOE's \$8.8 billion diode unit," *China Daily*, January 13, 2024, <https://www.chinadaily.com.cn/a/202401/13/WS65a1d611a3105f21a507c103.html>; "About Us: Tianma Group," *Tianma Europe GmbH*, 2023, <https://www.tianma.eu/about-us/tianma-group/>.

¹² "Government Information: Chengdu Hi-Tech Zone Development and Reform Bureau (Investment Services Bureau)," Chengdu Hi-Tech Zone Management Committee, July 2022, <https://www.cdht.gov.cn/gkml/jgjj/1638362218250760194.shtml> (uses the phrase "军民融合").

¹³ Jeremy Rausch, "Interview with Greg Levesque: Commercialized Militarization," *National Bureau of Asian Research*, June 30, 2021, <https://www.nbr.org/publication/commercialized-militarization-chinas-military-civil-fusion-strategy/>.

company operates facilities there for semiconductor production,¹⁴ software research,¹⁵ and artificial intelligence computing.¹⁶

The U.S. government has described Huawei as deeply entrenched with and funded by the PLA and the PRC intelligence apparatus, and the company's Chairman and CEO, Ren Zhengfei, served in the PLA and espouses PLA philosophy with respect to the company.¹⁷ The Huawei Chengdu Research Center, located in the enterprise zone, is also currently listed on the U.S. Department of Commerce's Entity List due to the national security threat that it represents. The Chengdu Hi-Tech Industrial Development Zone, with PRC military company Huawei as a chief partner, is clearly an MCF enterprise zone. BOE and Tianma's activities there qualify them as Chinese military companies, and their operations in the United States represent a threat to U.S. national security.

Thank you for your attention to this important matter.

Sincerely,



John Moolenaar
Chairman
House Select Committee on the CCP

¹⁴ "Chengdu Hi-tech Industrial Development Zone," *China Daily*, October 21, 2019, <https://investinchina.chinadaily.com.cn/s/201910/21/WS6486b628498ea274927bf391/chengdu-hi-tech-industrial-development-zone.html>.

¹⁵ "Huawei's First National Digital Service Innovation Center Established in Chengdu High-Tech Industrial Development Zone," *Chengdu Hi-Tech Industrial Development Zone*, July 8, 2024, https://www.cdht.gov.cn/gaoxin/c141902/2024-07/03/content_120f9e5fe8734c55b51f47a08f029f6b.shtml.

¹⁶ "Pursuing green data center in harmony with the nature at Chengdu," *Huawei*, https://digitalpower.huawei.com/tr/data-center-facility/success_stories/detail/454.html.

¹⁷ Christopher Ford, "Huawei and Its Siblings, the Chinese Tech Giants: National Security and Foreign Policy Implications—Remarks by Christopher Ford, Assistant Secretary," *U.S. Department of State*, September 11, 2019, <https://2017-2021.state.gov/huawei-and-its-siblings-the-chinese-tech-giants-national-security-and-foreign-policy-implications/>; "U.S. intelligence says Huawei funded by Chinese state security: report," *Reuters*, April 20, 2019, <https://www.reuters.com/article/us-usa-trade-china-huawei-idUSKCN1RW03D/>.