S²MARTS "Coming Soon" Opportunity (22-16)

Microelectronics Commons

The Office of the Undersecretary of Defense, Research & Engineering (OUSD(R&E))'s Microelectronics program has a need for domestic prototyping capability to accelerate technology demonstration. Processes, materials, devices, and architectures must be developed and quickly ported and re-characterized as they are transitioned from academia and industry to small-volume prototyping and then scaled up for production. Due to the very high complexity of integrated microelectronic systems today, there is an urgent need to establish a network of domestic prototyping facilities to demonstrate, at-scale, the system-level benefits of innovations in microelectronics materials, processes, devices, and architectural designs. Demonstrating at-scale commercial viability is required to close the gap between innovation and market adoption.

However, at-scale prototyping is high-risk and expensive. As a result, small and mid-size companies and universities have great difficulty bridging the "Valley of Death" between research ideas and realization of those ideas into full manufacturing. In particular, prototyping capabilities for six application areas that are critical to the DoD will be supported. Those areas are: Secure Edge Computing, 5G/6G Technology, Artificial Intelligence Hardware, Quantum Technology, Electronic Warfare, and Commercial Leap Ahead Technologies. The end-state goal is to develop a national network of regional innovation hubs and core facilities distributed across the U.S. that will reduce barriers to innovation, mature emerging microelectronics technologies, enhance existing microelectronics infrastructure, and foster a pipeline of domestic talent and innovative ideas.

The Microelectronics Commons Other Transaction Authority (OTA) prototype project is anticipated to be released and be executed within a 60-month period.