Establish a Government-Wide Trusted Microelectronics Research, Test and Evaluation Laboratory

Background

Both the U.S. government's national security posture and the Nation's critical infrastructure sectors rely on information and communications technology (ICT) and thus rely on the integrity of installed microchips. For the broader microchip marketplace, the main goals are cheaper, faster, and more powerful, which means that aspects of the chips that are critical to the U.S. government, such as security and robustness, are no longer driving the semiconductor industry.

ICT must be both trustworthy and reliable to perform as and only as designed and when and only when needed. Ensuring that security and robustness again become prime attributes of the design, fabrication, installation, and operations will require independent mission assurance functions to be implemented. Further, research and development (R&D) must be an integral component of the effort if we are to maintain technological superiority in a world where the threat continues to evolve at an increasing rate.

Proposal

Establish a new entity focused exclusively on securing the ICT supply chain from design through operations, ensuring management control to drive culture change, re- writing the code of conduct governing ICT design, and providing the needed focus on security and resiliency as major qualities for integrated circuits for national security needs. Mission assurance, including developing and monitoring assurance-oriented analytics, will be the prime focus of this activity. This entity could take the form of a new Federally Funded Research and Development Center (FFRDC) or consortia of industry, academic, and government experts through other contracting mechanisms. This capability would evolve and align with the Government's needs and industry capabilities as separate and distinct from any particular commercial approaches.

Proposed Funding

Initially, the Laboratory could support between 100-150 personnel. This would require approximately $40 million in initial funding and $20-25 million to operate annually. Within the first five years, the Laboratory would establish a funding model such that it would become self-sustaining and require no direct appropriations by Congress. That is, it would be established under the mandate of the Federal Government initially with appropriated funds, and then it would continue to operate under the authorization granted by the Government to ensure the roles of standard-setting, independent mission assurance, and R&D would continue, but with no funding guarantees.

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