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Highlights

Highlights of [GAO-05-278](#), a report to the Chairman, Subcommittee on Tactical Air and Land Forces, Committee on Armed Services, House of Representatives

Why GAO Did This Study

The Department of Defense's (DOD) ability to provide superior capabilities to the warfighter is dependent on its ability to incorporate rapidly evolving, cutting-edge microelectronic devices into its defense systems. While many commercial microelectronics advances apply to defense systems, DOD has some unique microelectronics needs not met by industry. Therefore, to maintain military superiority, DOD has the challenge of exploiting state-of-the-art commercial microelectronics technology and focusing its research investments in areas with the highest potential return for defense systems.

Given the importance of advanced microelectronics to defense systems and the rapid changes in these technologies, you asked GAO to (1) identify and describe DOD and federally funded research and development center (FFRDC) facilities that receive funding from DOD for microelectronics production or research prototyping and (2) describe how DOD coordinates investments in microelectronics research.

www.gao.gov/cgi-bin/getrpt?GAO-05-278.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Ann Calvaresi-Barr at (202) 512-4841 or calvaresibarra@gao.gov.

DEFENSE MICROELECTRONICS

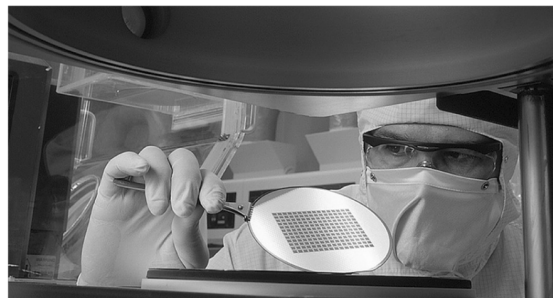
DOD-Funded Facilities Involved in Research Prototyping or Production

What GAO Found

At the time of our review, eight DOD and FFRDC facilities that received funding from DOD were involved in microelectronics research prototyping or production. Three of these facilities focused solely on research; three primarily focused on research but had limited production capabilities; and two focused solely on production. The research conducted ranged from exploring potential applications of new materials in microelectronic devices to developing a process to improve the performance and reliability of microwave devices. Production efforts generally focus on devices that are used in defense systems but not readily obtainable on the commercial market, either because DOD's requirements are unique and highly classified or because they are no longer commercially produced. For example, one of the two facilities that focuses solely on production acquires process lines that commercial firms are abandoning and, through reverse-engineering and prototyping, provides DOD with these abandoned devices. During the course of GAO's review, one facility, which produced microelectronic circuits for DOD's Trident program, closed. Officials from the facility told us that without Trident program funds, operating the facility became cost prohibitive. These circuits are now provided by a commercial supplier. Another facility is slated for closure in 2006 due to exorbitant costs for producing the next generation of circuits. The classified integrated circuits produced by this facility will also be supplied by a commercial supplier.

DOD has several mechanisms in place aimed at coordinating and planning research conducted by the military services and defense agencies. One key mechanism is identifying defense technology objectives—the specific technology advancements that will be developed or demonstrated across multiple joint capabilities and technology areas. As of February 2004, there were almost 400 defense technology objectives; five of these were identified as microelectronics. DOD also collaborates with industry to review and assess special technology areas and make recommendations about future electronics and microelectronics research.

Microelectronics Worker in Clean Room Processing Area



Source: Defense Microelectronic Activity.