



RADIATION PROTECTION FOR STOCKPILE MICROELECTRONICS

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R&D CHALLENGE

- Integrated circuits are critical to the performance of nuclear weapons and national security systems that operate in the upper atmosphere and space.
- Standard materials and processes for commercial microchip production are vulnerable to ionizing radiation from natural and deliberate sources.

TECHNICAL VITALITY

- Processing methods and materials were developed that built radiation-protection into the chip.
- Special techniques applied during processing mitigated radiation effects.
- Sandia implemented the design of modularized integrated solid-state electronics.

IMPACT & BENEFIT

- Sandia is providing more than 25,000 ASICs to the nation's stockpile modernization program over the next 10 years.
- The ASIC improvements reduced the development costs of a modernization project by more than 25%.

