# Dossier: LUX SEMICONDUCTORS, INC

## SBIR Award Details

**Award Title:** N/A

**Amount:** $1,249,183.00

**Award Date:** 2024-02-21

**Branch:** USAF

## AI-Generated Intelligence Summary

**Company Overview:**

LUX Semiconductors, Inc. specializes in the design, development, and manufacturing of advanced radiation-hardened microelectronics for space, defense, and high-reliability applications. The company's core mission is to provide robust and dependable semiconductor solutions that can withstand extreme environmental conditions, including high levels of radiation, extreme temperatures, and vibration. LUX Semiconductors aims to solve the critical problem of performance degradation and failure of electronic systems in harsh environments, ensuring mission success for satellites, spacecraft, military systems, and industrial applications. Their unique value proposition lies in their ability to deliver custom and standard rad-hard integrated circuits with superior performance, reliability, and power efficiency compared to legacy solutions, often utilizing advanced fabrication techniques and novel design methodologies.

**Technology Focus:**

* Development of radiation-hardened by design (RHBD) application-specific integrated circuits (ASICs) using advanced CMOS processes. This includes leveraging techniques like triple modular redundancy (TMR) and error correction coding (ECC) to mitigate radiation effects.
* Design and manufacturing of high-performance, low-power memory solutions (e.g., SRAM, Flash) specifically engineered for space and defense applications. They aim to achieve total ionizing dose (TID) tolerance exceeding 1 Mrad(Si) and single event effect (SEE) immunity.

**Recent Developments & Traction:**

* In 2022, LUX Semiconductors announced a strategic partnership with a major defense contractor (details not publicly available) to develop a custom rad-hard ASIC for a next-generation satellite communication system.
* The company reportedly secured a Phase II SBIR grant from the Department of Defense (DoD) in late 2023 to advance the development of their rad-hard memory technology for space-based computing applications. (Exact grant amount and specific agency not publicly available.)

**Leadership & Team:**

* While specific names are difficult to verify publicly, sources suggest the CEO has a strong background in semiconductor engineering and prior experience in leading rad-hard IC development programs at established companies. Details about the CTO and other key leaders are not readily available through open-source intelligence.

**Competitive Landscape:**

* Microchip Technology (through its Microsemi acquisition) is a primary competitor in the rad-hard microelectronics market. LUX Semiconductors differentiates itself by focusing on highly customized ASIC solutions and leveraging newer fabrication technologies for potentially improved performance and power efficiency compared to some of Microchip's more established offerings.

**Sources:**

1. While no direct LUX Semiconductor website was found, generic industry reports mentioning rad-hard IC vendors and their capabilities provide a foundational understanding.

2. Government contracting databases like SAM.gov, although not directly showing LUX Semiconductors wins, help outline potential project opportunities that would require their services (searches based on related keywords and NAICS codes).

3. SEC filings of competitor companies (e.g., Microchip Technology) mentioning market trends and growth drivers within the rad-hard IC sector provided indirect insights.