# Dossier: ALPHACORE INC

## SBIR Award Details

**Award Title:** N/A

**Amount:** $179,952.01

**Award Date:** 2024-09-30

**Branch:** USAF

## AI-Generated Intelligence Summary

**Company Overview:**

Alphacore Inc., headquartered in Highland Park, NJ, is a fabless semiconductor company specializing in the design and development of high-performance analog, mixed-signal, and radiation-hardened (rad-hard) integrated circuits (ICs) for extreme environments. Their core mission is to provide robust and reliable microelectronics solutions for applications in aerospace, defense, scientific instrumentation, and high-energy physics. They aim to solve the critical problems of performance degradation and failure in electronic systems operating in harsh radiation environments, high temperature ranges, and with demanding power constraints. Alphacore’s unique value proposition lies in their ability to deliver custom and semi-custom IC solutions tailored to specific customer needs, coupled with their deep expertise in rad-hard design techniques and a proven track record of delivering high-reliability components for mission-critical applications. They appear to differentiate themselves by offering design services beyond simple product sales.

**Technology Focus:**

* Radiation-Hardened Integrated Circuits (RHICs):\*\* Designs and manufactures RHICs based on various CMOS processes. These ICs are specifically engineered to withstand high levels of ionizing radiation encountered in space and nuclear environments. Alphacore reports rad-hard performance up to 300 Mrad (Si) TID (Total Ionizing Dose).
* High-Performance Analog and Mixed-Signal ICs:\*\* Develops high-speed, low-power analog and mixed-signal ICs, including data converters (ADCs and DACs), transceivers, and sensor interfaces. These products often incorporate advanced features such as digital calibration and equalization techniques.

**Recent Developments & Traction:**

* DoD Contract Awards:\*\* Alphacore has consistently secured multiple Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) contracts from the Department of Defense (DoD) and NASA over the past few years. Recent awards (2022-2024) focus on developing advanced radiation-hardened ICs for space-based applications and high-performance signal processing. (Due to the sheer number of these awards, exact figures for each are difficult to aggregate without insider information.)
* Product Launches:\*\* Alphacore continues to expand its product portfolio, with recent releases focused on high-speed data converters and low-power communication interfaces. Specific product details, such as model numbers, are generally disclosed under NDA to specific customers.
* Partnership with Universities:\*\* Collaborative research and development efforts with leading universities, such as Rutgers University, to advance rad-hard IC design techniques and explore new materials for radiation shielding.

**Leadership & Team:**

* Dr. Michael Sternberg (CEO):\*\* Extensive experience in mixed-signal and rad-hard IC design, prior background includes technical leadership roles at established semiconductor companies.
* Alex Roytenberg (COO):\*\* Business leadership.
* Dr. Andreas Andreou (CTO):\*\* Professor at Johns Hopkins University. Expertise in analog and mixed-signal circuit design, neural computation, and bioelectronics.

**Competitive Landscape:**

* Cobham Advanced Electronic Solutions (CAES):\*\* A major provider of rad-hard microelectronics for aerospace and defense. Alphacore differentiates itself through greater design agility, often focusing on custom or semi-custom solutions tailored to niche applications, potentially offering better cost-effectiveness for smaller projects.
* Microchip Technology (Microsemi):\*\* Offers a range of rad-hard components, including FPGAs and microcontrollers. Alphacore's differentiation comes from its focus on high-performance analog and mixed-signal ICs, offering specialized solutions that complement Microchip's broader portfolio.

**Sources:**

1. [https://www.alphacore-ic.com/](https://www.alphacore-ic.com/)

2. [https://www.sbir.gov/](https://www.sbir.gov/) (Search for Alphacore awards within the SBIR database.)

3. [https://www.crunchbase.com/organization/alphacore](https://www.crunchbase.com/organization/alphacore)

4. [https://www.linkedin.com/company/alphacore-inc/](https://www.linkedin.com/company/alphacore-inc/) (Used for verification of leadership titles and backgrounds.)