# Dossier: HYPRES INC

## SBIR Award Details

**Award Title:** N/A

**Amount:** $249,782.81

**Award Date:** 2024-08-28

**Branch:** ARMY

## AI-Generated Intelligence Summary

**Company Overview:**

HYPRES, Inc. is a leading provider of superconducting electronics solutions, specializing in the development and manufacturing of high-performance digital and mixed-signal circuits and systems for demanding applications in quantum computing, high-speed digital signal processing, and advanced sensing. Their core mission is to unlock the potential of superconductivity to revolutionize computing and signal processing, enabling breakthroughs in areas that require ultra-low power, extremely high speed, and quantum-compatible operation. They aim to solve the limitations of conventional semiconductor technology in addressing the ever-increasing demands of complex computations and data analysis. Their unique value proposition lies in their ability to design, fabricate, and integrate advanced superconducting circuits, providing unmatched performance in speed, sensitivity, and energy efficiency, particularly at cryogenic temperatures.

**Technology Focus:**

* Superconducting Single Flux Quantum (SFQ) logic: HYPRES leverages SFQ technology to create digital circuits that operate at extremely high clock speeds (potentially up to hundreds of GHz) with ultra-low power consumption (orders of magnitude lower than CMOS).
* Custom Integrated Circuits: The company designs and manufactures custom superconducting integrated circuits (ICs), including analog-to-digital converters (ADCs), digital-to-analog converters (DACs), and high-speed digital logic. These ICs are often tailored for applications in quantum computing control systems and advanced communication networks.

**Recent Developments & Traction:**

* In April 2022, HYPRES was acquired by Seeqc, a company focused on developing scalable quantum computing solutions. The acquisition aimed to integrate HYPRES' superconducting electronics technology with Seeqc's quantum computing platform.
* Ongoing work on integrating classical superconducting control electronics with quantum processors, enabling more efficient and scalable quantum systems. This has been showcased at several industry conferences.

**Leadership & Team:**

* Gregory Snider (CEO): Background not publicly available via easy search.
* Oleg Mukhanov (Founder, now Chief Technology Officer at Seeqc): A recognized expert in superconducting electronics and SFQ logic.

**Competitive Landscape:**

* D-Wave Systems: While primarily a quantum computing company, D-Wave also invests in superconducting electronics research, making them a potential competitor in the broader superconducting technology space.
* Other research labs and universities: Various academic institutions also develop superconducting electronics, but HYPRES's core differentiator is its commercial focus and ability to manufacture custom ICs. Seeqc acquisition gives further competitive edge within the quantum space.

**Sources:**

1. [https://www.prnewswire.com/news-releases/seeqc-acquires-hypres-expanding-its-leadership-in-digital-quantum-computing-301531114.html](https://www.prnewswire.com/news-releases/seeqc-acquires-hypres-expanding-its-leadership-in-digital-quantum-computing-301531114.html)

2. [https://www.seeqc.com/](https://www.seeqc.com/)

3. [https://www.superconducting.org/](https://www.superconducting.org/) (General info on superconducting electronics, helps understand HYPRES's tech)