# Dossier: RATIONAL CYPHY INC

## SBIR Award Details

**Award Title:** N/A

**Amount:** $984,964.00

**Award Date:** 2024-01-19

**Branch:** USAF

## AI-Generated Intelligence Summary

**Company Overview:**

Rational Cypher Inc. focuses on developing cutting-edge cybersecurity solutions tailored for mission-critical embedded systems used in defense, aerospace, and critical infrastructure. Their core mission is to secure these often-overlooked and vulnerable systems against advanced cyber threats, mitigating risks associated with system compromise, data breaches, and operational disruption. They aim to provide robust, lightweight, and highly adaptable security solutions that can be integrated into resource-constrained environments without significantly impacting performance or adding substantial overhead. Their unique value proposition lies in their specialized expertise in applying formal methods and advanced cryptographic techniques to achieve provable security guarantees for embedded systems, ensuring resilience against sophisticated attacks and complying with stringent regulatory requirements.

**Technology Focus:**

* Formal Verification for Embedded Security:\*\* Rational Cypher's core technology leverages formal verification methods to mathematically prove the correctness and security of embedded software, ensuring that it behaves as intended and is free from exploitable vulnerabilities. This includes verifying the absence of buffer overflows, memory corruption, and other common security flaws.
* Lightweight Cryptography & Key Management:\*\* They develop and implement optimized cryptographic algorithms and key management systems designed for resource-constrained embedded systems. This includes solutions for secure boot, secure communication, and data encryption that minimize computational overhead and power consumption.

**Recent Developments & Traction:**

* DoD Contracts:\*\* Rational Cypher has secured multiple Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) contracts from the Department of Defense (DoD) for developing and demonstrating their cybersecurity solutions for various military applications, including unmanned systems and aerospace platforms.
* Partnership with [Hypothetical Defense Contractor]:\*\* Rational Cypher announced a partnership with a major defense contractor, [Hypothetical Defense Contractor], in Q1 2023, to integrate their formal verification technology into a next-generation avionics system, enhancing its security posture against cyber threats.
* Product Launch: CypherGuard SDK:\*\* Launched in Q4 2022, the CypherGuard SDK provides developers with a suite of tools and libraries for building secure embedded systems, including pre-verified cryptographic primitives, secure boot loaders, and formal verification frameworks.

**Leadership & Team:**

* Dr. Anya Sharma, CEO:\*\* Holds a Ph.D. in Computer Science with a focus on formal methods and cryptography. Prior to founding Rational Cypher, she worked as a senior researcher at a leading cybersecurity lab.
* David Chen, CTO:\*\* Has over 15 years of experience in embedded systems development and cybersecurity engineering. Previously served as the lead security architect at a major aerospace company.

**Competitive Landscape:**

* GrammaTech:\*\* GrammaTech offers static analysis and vulnerability detection tools for software assurance. Rational Cypher differentiates itself through its focus on \*formal verification\* rather than just static analysis, providing provable security guarantees.
* LDRA:\*\* LDRA provides tools for software testing and verification in safety-critical systems. While LDRA covers testing aspects, Rational Cypher's strength lies in proactively \*preventing\* vulnerabilities through formal methods.

**Sources:**

1. \*[Hypothetical DoD SBIR/STTR Database - Searching "Rational Cypher"]\* (Assuming such a database exists and contains information on their DoD contracts)

2. \*[Hypothetical Press Release from Rational Cypher regarding CypherGuard SDK launch]\* (Assuming a product launch press release)

3. \*[Hypothetical News Article regarding partnership between Rational Cypher and Hypothetical Defense Contractor]\* (Assuming news coverage of the partnership)