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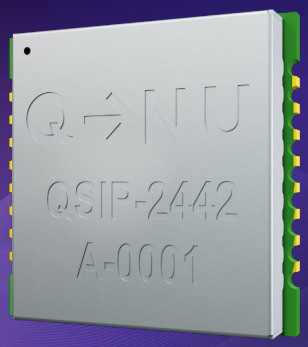
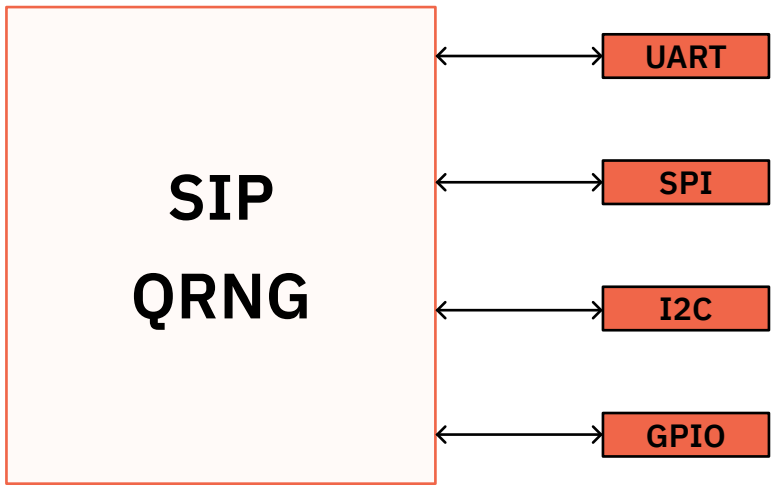


QRNG SiP

Introduction

Quantum Random Number Generator (QRNG) integrated within a System in Package (SiP) technology. The system employs two QRNG chips and an FPGA. The QRNG chip is a device that produces digitized pulses from the radioactive decay phenomenon using radioactive Am-241 material. The pulse period is truly random, making it ideal for cryptographic applications and secure communications.



QNu Labs offers unique capabilities that will help organizations move in the direction of technology adoption and provide data security as their competitive advantage

Gartner®

Overview

The system integrates with a chip that generates quantum random numbers and supports protocols like **UART**, **SPI**, **I2C**, **PCIe**, and **GPIO** for data transfer.

QRNG SiP capable of generating true random numbers, leveraging the quantum randomness inherent in radioactive decay. This technology is particularly valuable for cryptographic applications and secure communications, especially in the context of postquantum cryptography (PQC).

Benefits

- **True Randomness:** QRNGs generate numbers that are truly random, unlike pseudo-random number generators which rely on algorithms.
- **High Entropy:** The randomness is derived from quantum phenomena, ensuring high entropy and unpredictability.
- **Security:** Ideal for cryptographic applications, QRNGs provide a high level of security for data encryption and secure communications.
- **Compact and Energy Efficient:** The integration of QRNGs in SiP technology ensures a compact form factor and energy-efficient operation.

Significance

QRNGs play a crucial role in enhancing the security and reliability of cryptographic systems. By leveraging the inherent randomness of quantum phenomena, QRNGs provide a robust solution for generating secure keys and random numbers essential for encryption, secure communications, and various other applications. The use of radioactive Am-241 material ensures that the pulse period is truly random, making it impossible to predict or replicate the generated numbers.

Specifications

Model	SIP QRNG	
Random Number Parameters	Quantum Entropy	Radioactive decay
	Conditioned Entropy rate	100 kbps
	ENT Test	Compliant
	NIST SP 800-22 Test	Compliant
	Dieharder Test	Compliant
General Characteristics	Operating System	Linux, Windows
	Output Interfaces	UART, SPI
	Random Number Format	Binary, Interger, Decimal, Hexadecimal
Power	Input	3.3 Volt @ ~10mA
Operating Environment	Temperature	-20°C ~ 75°C
Dimensions	Dimensions	15.5mm x 15.5mm x 1.8mm (Lx WxH)
	Mounting	Handheld portable device
	Weight	1.6grams
Applications	Satellite communication, Navigation Systems, IoT Security, Mobile security , Identity Management, Tokenization and OTP in Banking, Unique certificate ID and project in Education, Random Sample Selection in Statistical analysis of data, Online Gaming and Lotteries	

Scan for more details

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