Entropy Quantum Computing

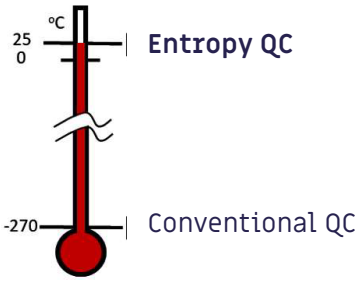
AN INNOVATIVE QUANTUM COMPUTING APPROACH

QCi | Innovative Quantum Solutions Company

In quantum information processing, loss and noise are assumed to be detrimental. Therefore, conventional quantum systems using atomic or superconducting qubits must be hosted in cryogenic vacuum chambers to create a closed system devoid of interference. This requirement translates to deep challenges in quantum systems manufacturing and operations. In general, loss and noise have traditionally been a bottleneck, preventing the industry from scaling beyond the Noisy Intermediate Scale Quantum era's qubit numbers and connectivity.

A New Approach

At Quantum Computing Inc. (QCI), we take a different approach. Rather than trying to avoid loss and noise, we harness them to build quantum machines whose capacity and speed outmatch existing computing modalities.



Operational temperature of Conventional QC vs. Entropy QC

In sharp contrast to existing quantum platforms, there is no need for cryogenic or isolated environments, and the implementation can use **integrated photonics**. This leads to our ability to build **small size, low power, low cost, scalable, and room temperature** entropy quantum computers.

Quantum Principles

Entropy Quantum Computing (EQC) is deeply rooted in the principles of quantum mechanics.

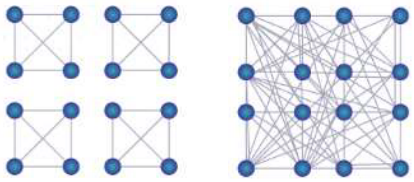
First, loss or decoherence of a quantum state occurs through its coupling to an entropy source with many degrees of freedom. The apparent diminishing of quantum characteristics as a result is a statistically averaged manifestation of many possible outcomes of such coupling. Second, a vacuum is never quiet, and in fact, enormous amounts of random fluctuations occur at all times in each of the vacuum modes. EQC is conceived and developed around these foundational quantum principles.

Rather than trying to create and manipulate pristine qubits isolated from the environment, EQC operates as an **open quantum system**.

By utilizing loss and decoherence, EQC turns precise control of entropy into a powerful core of its computing engine.

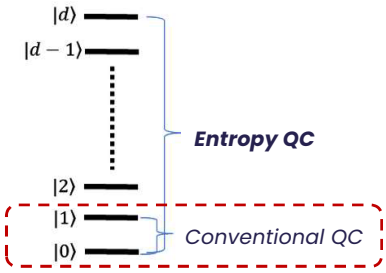
Our Unique Capabilities

Harnessing these technologies, QCI's EQC systems are capable of solving optimization problems with **global connectivity .**



Conventional quantum computers limited to nearest neighbor connectivity (left) vs. EQC which allows global (all to all) connectivity (right).

By using the superposition of **multiple dimensions** instead of just 0 and 1, exploiting the many degrees of freedom of photons, EQC systems are capable of solving both binary (qubit) or integer (qudit) problems.



Dimension of Conventional QC vs. Entropy QC

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