

Topological Quantum Computing: Unlocking Stable and Scalable Quantum Systems with Microsoft's Majorana Qubits

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Abstract: *This paper examines Microsoft's advancements in quantum computing using topological qubits deduced from Majorana zero modes. Unlike conventional infrastructures taking expansive error correction, Microsoft's approach emphasizes natural fault forbearance through topological countries. The study analyzes the Majorana 1 chip(early 2025), which reportedly integrates roughly one million qubits using new" topoconductors." We assess these claims and compare Microsoft's approach with other platforms similar as superconducting and ion- trap systems. While the approach offers promising error adaptability and reduced computational out ow, it faces dubitation regarding the interpretation of experimental results. This work provides a balanced perspective on the feasibility and unborn prospects of topological quantum computing as a potentially transformative technology in the quantum calculating geography..*

Keywords: *Microsoft's advancements*

