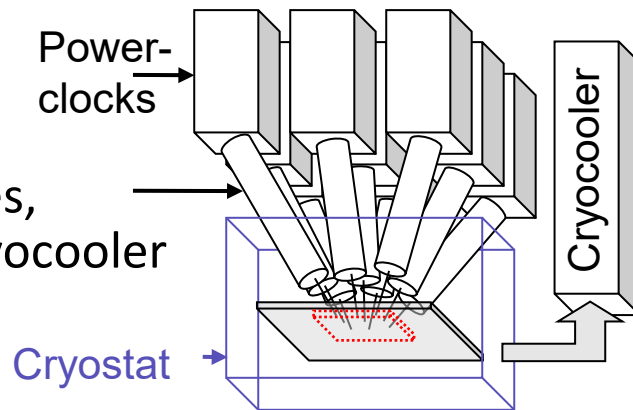


Reversible for Quantum Computer Control

Status: Actionable Now (Zettaflops, LLC)

- Cryogenic reversible

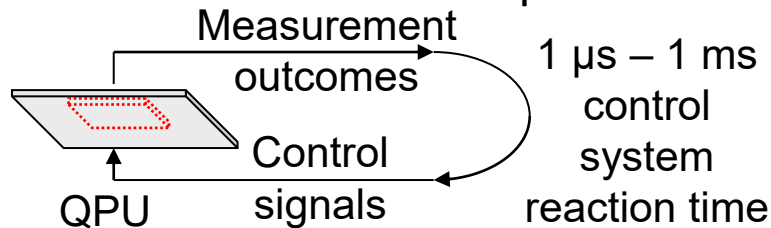
- Waste heat moves out of the cryostat via the clock wires, bypassing the cryocooler and its overhead
- No resonators



DeBenedictis, Erik P. *Managing Energy in Computation with Reversible Circuits*. Patent Application No. WO2022197556. September, 2022.
<https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2022197556>

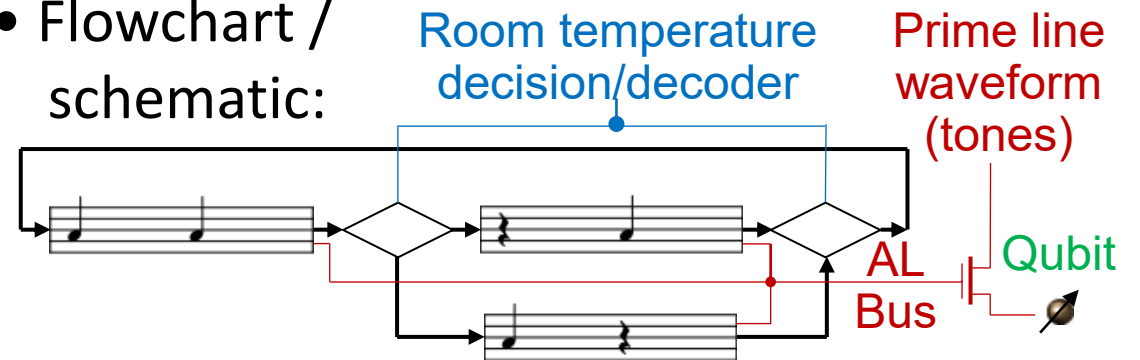
- 1 MHz is fast enough (for transmon qubits)

- A faster controller will not increase quantum throughput

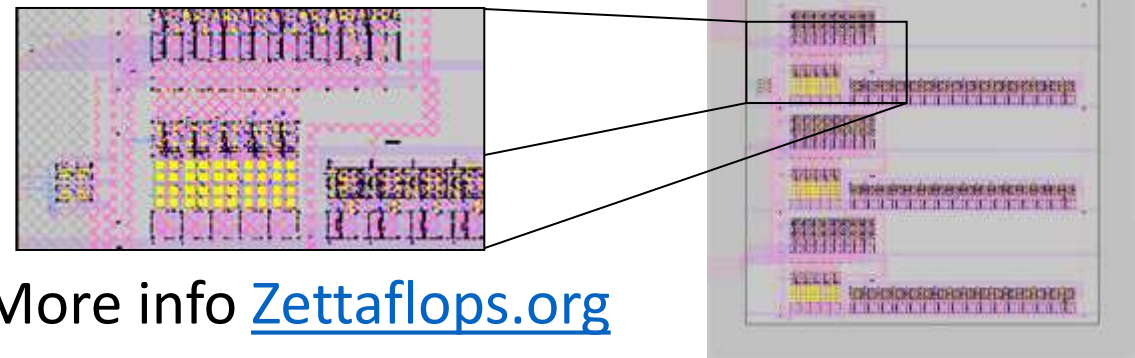


Battistel, Francesco, et al. "Real-Time Decoding for Fault-Tolerant Quantum Computing: Progress, Challenges and Outlook." *arXiv preprint arXiv:2303.00054* (2023).

- Architecture: controller performs quantum error correction by playing tones to qubits
- Flowchart / schematic:



- Status: test layout; not yet fabbed



- More info Zettaflops.org