Benchmarking Beyond CMOS Devices

Technology	Solid-state –superconducting - Qubits
Gain, Signal/Noise ratio, Non-linearity	n/a
Speed **Power consumption**	~2^N from gate standpoint is almost 0 but the energy required to run cryogenic equipment (for ultra-low noise) is fairly high → Qubits is not the replacement for CMOS
Architecture/Integrability **(Inputs/outputs, digital, multilevel, analog, size etc.)**	- Maintain current de-coherence rate and implement correction witha reasonable increase in number of Qubits - Integration/Interfacing: read-out is straightforward (current direction is used to identify 1 or 0) but strategy on how to open the system w/o introducing noise is challenging (during computing).
Manufacturability **(Fabrication processes needed, tolerances etc.)**	- Al tunnel junctions (best coherence), involves EBL. - No obvious material-related issue as it operates at very low T and Qubits are not stressed.
Timeline	10 to 100 Qubits quantum computing in less than 10 years from now (doesn't include error correction?).