The Register Problem

A Force-of-Time diagnosis of why quantum computing cannot scale

Stephen Daubney · The Daubney Foundation · Rev 2 · 2026
thedaubneyfoundation@gmail.com

Tau (T) is the living fabric of time itself — the sole substance of which all physical reality is composed. Every particle, force, wavelength, and conscious experience is a structured configuration of T-flow. There is no gravity, no electromagnetic force, no strong nuclear force as separate entities: all are registers of the single T-field operating across dimensional levels. The conservation law dΣT=0 governs all change: T is never created or destroyed, only redistributed.

Abstract

Quantum computing is the most ambitious computing programme in human history, and at its foundations it rests on a misreading of what it is doing. The Universal Force of Time describes a single time-substance, T, expressing itself at three registers: **G0**, the subatomic; **G1**, the atomic and molecular; and **G2**, the celestial. Quantum superposition and entanglement — the phenomena a quantum computer exploits — are **G0-register** phenomena, and they are real, among the most precisely confirmed predictions in physics. But every piece of hardware that builds, cools, controls, and reads a quantum computer exists in the **G1 register**. The computation lives in one register; the machine lives in another. The distance between them is not a gap of engineering sophistication but a fixed lattice constant of the time-field: the G-bond step **δ_G = 90.15 parts per million** (= $5^{10}/(2^4\times3^9\times\pi^3) - 1$), which does not close with better fabrication. From this one fact five structural problems follow, and this paper derives each in turn: register incompatibility; decoherence as the conservation law dΣT=0 restoring equilibrium; the error-correction trap, in which each protective qubit adds a new surface of intrusion; the measurement paradox, a forced G0→G1 traversal; and the scalability inversion, in which the technology grows more fragile, not more robust, with size. These are not engineering problems awaiting cleverer solutions. They are consequences of asking a G1 environment to host a G0 computation indefinitely. Six propositions, P-QCD-1 to P-QCD-6, are given. The diagnosis is offered here in full; the resolution — the conditions under which information at quantum density could be computed without this conflict — is reserved.

1. The coldest point in the known universe

Every quantum computer on Earth begins its life the same way: it is cooled to a temperature colder than the void between the galaxies. The average temperature of deep space, set by the cosmic microwave background — the faint afterglow of the universe's beginning — is **2.725 K**. A leading superconducting quantum processor operates at **0.015 K**, fifteen thousandths of a degree above absolute zero. That is, by a factor of **182**, the coldest environment human beings have ever deliberately built (Fig. 1).

The machinery needed to hold that cold is not a benchtop instrument. It is building-scale infrastructure — dilution refrigerators metres tall, wrapped in stage after stage of thermal shielding, fed by control electronics that must themselves be isolated from the processor they serve. The coldest point in the known universe is a rack in a data centre. That a technology demanding this much environmental violence is routinely called the near-term future of computing should, by itself, prompt one question: why? A technology structurally at war with its surroundings — armoured at extraordinary cost against ordinary room temperature merely to function — is not almost there. It is asking the wrong question. The Force of Time names the question exactly: quantum computing is a G0-register computation performed inside a G1-register machine, and every obstacle it has met follows from that single fact.

2. What quantum computing is, in Force-of-Time terms

The time-field operates at three registers at once. The **G0** register governs the subatomic — quarks, superposition, the behaviour of matter below the atom. The **G1** register governs the atomic and molecular — chemistry, thermal motion, electronics, biology, the scale at which we and our machines live. The **G2** register governs the celestial — orbits, planetary motion, stellar structure. The same mathematics runs all three; what changes is the scale at which T is expressing itself.

Superposition — a particle holding several states at once until it is read — is a G0 property. Entanglement — states correlated across space — is a G0 property. These are real and exquisitely confirmed. The trouble is not that they fail to exist. The trouble is that quantum computing tries to harness them with hardware — superconducting circuits, ion traps, control lines, readout chains — that exists entirely in G1. The computation lives in G0; the machine that performs it lives in G1. The separation between the two is the **G-bond step**, **δ_G = 90.15 parts per million** (= $5^{10}/(2^4 \times 3^9 \times \pi^3) - 1$) — a fixed constant of the lattice, not a manufacturing tolerance. It does not shrink with finer fabrication. It is the distance between G0 and G1, and it does not close.

3. Problem one — register incompatibility

The first and deepest problem is that there is no stable resting place for a G0 computation inside a G1 environment (Fig. 3). At room temperature, 300 K, the G1 thermal energy is about **25.85 meV**. The energy gaps leading superconducting qubits use are **1–40 μeV** — microwave-scale transitions a thousand times smaller, utterly swamped by ordinary G1 thermal noise. The only move available is to quiet the G1 environment until the G0 phenomena can be seen: cool to **15 mK**, where the thermal energy kT falls to about **1.293 μeV**, finally comparable to the qubit gaps.

This does not resolve the incompatibility — it suppresses one register so the other can surface. The G1 world is not removed; it is merely hushed. Every cable into the processor carries G1 energy. Every control pulse originates in G1. Every measurement is taken by a G1 instrument. The G0 computation is surrounded at all times by G1 intrusions. Decoherence, in this light, is not a nuisance to be engineered away — it is the G1 register reasserting the dominance that is natural to it.

4. Problem two — decoherence is $d\Sigma T = 0$

Decoherence is the name for the collapse of a superposition — a qubit holding 0 and 1 at once settling definitively into one. It is the central obstacle of the field; coherence in the best systems lasts from microseconds to, in the most protected designs, a few milliseconds before it is lost. The Force of Time identifies it for what it is: the conservation law **$d\Sigma T = 0$** restoring equilibrium.

A G0 superposition is, in these terms, a temporary displacement of the time-field away from its G1 ground state. The conservation law requires that displacement to be resolved. The qubit collapses because the time-field is returning to $d\Sigma T = 0$ balance — not because of imperfect isolation or insufficient cooling, but because this is simply what T does. That is why better isolation buys longer coherence but never infinite coherence: an unending superposition would demand the total suppression of G1, which is to say the deletion of the very environment the machine inhabits. There is no engineering road to that.

5. Problem three — the error-correction trap

The field's main answer to decoherence is error correction: encode one logical qubit across many physical qubits so that, when individuals decohere, the logical information survives. Current estimates put the cost between **1,000 and 10,000 physical qubits** to protect a single logical qubit to a useful error rate.

This carries a structural trap. Every added physical qubit is one more G0 system embedded in G1 — one more surface across which G1 energy can intrude, one more strand of control and readout, which is itself a fresh G1 intervention. The overhead does not fall toward zero as the system grows; it grows with it. The data show it: as processors have climbed from tens of qubits to hundreds and into the thousands, the per-gate error rate has not descended toward the threshold practical advantage requires — in several leading architectures it has risen (Fig. 2). A problem that gets harder the more resources you throw at it is not a problem of too few resources. It is a sign of the wrong approach.

6. Problem four — the measurement paradox

Reading the result of a quantum computation means measuring the qubits, and measurement collapses the superposition: the act of reading the answer destroys the state that produced it. This is variously framed as a philosophical puzzle, a feature of quantum mechanics, or a circuit-design challenge. In the Force of Time it is none of these. Measurement is a G1-register intervention into a G0-register computation. The instrument is a G1 device; the act forces a **G0 → G1 traversal**. The superposition collapses because it cannot survive that crossing — the G0 state is consumed in its own extraction.

No amount of more careful measurement removes this, because measurement in quantum computing is inherently a cross-register event, and cross-register events are governed by the conservation law. The information held in a superposition and the information that can be drawn out of it are not the same quantity. The shortfall between them is not a precision error. It is a register gap.

7. Problem five — the scalability inversion

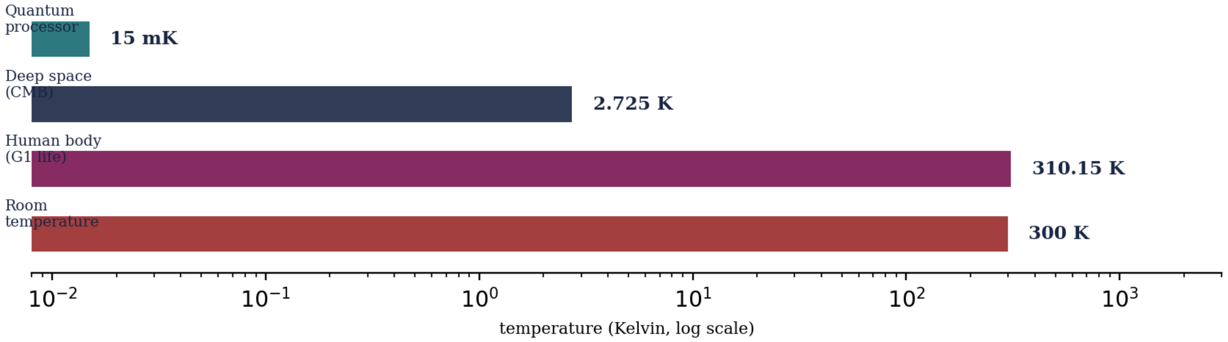
Classical computing rewards scale cleanly: more transistors, more computation, and the failure rate of an individual transistor does not climb as the circuit grows. That is because classical computing is a G1 technology in a G1 world — machine and environment share a register; they are not at war. Quantum computing does the opposite. Each new qubit is a new surface of contact between the G0 computation and the G1 environment. The ratio of G1 intrusion-surfaces to G0 computational volume rises with size. Double the qubits and you do not double the opportunity for decoherence — you more than double it, because the interconnects, control lines and readout chains multiply faster than the qubits themselves.

This is the **scalability inversion**: the technology becomes more fragile as it grows, not more robust. No degree of engineering optimisation reverses the direction of the trend, because the trend is a consequence of the register conflict, not of imperfect engineering. A thousand well-built qubits face a structurally harder problem than ten well-built qubits, and ten thousand a harder problem still. The curve bends the wrong way by construction.

8. What this means

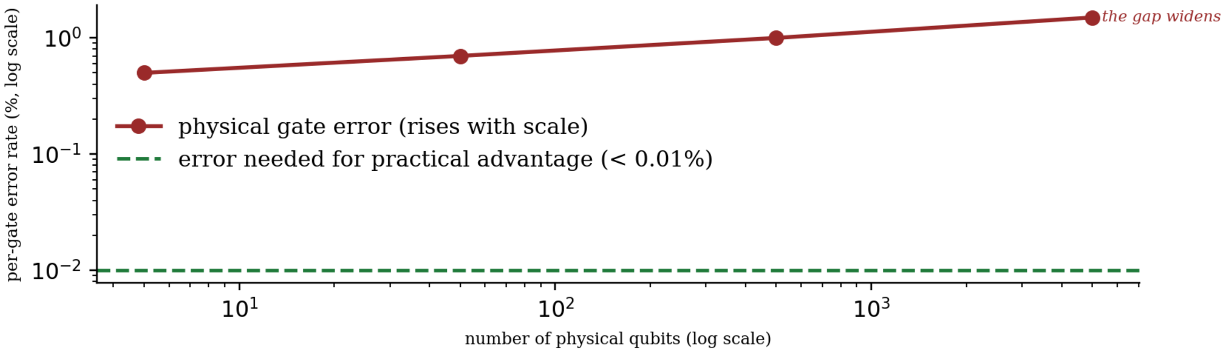
Five problems — register incompatibility, decoherence, the error-correction trap, the measurement paradox, the scalability inversion — have been treated for two decades as five separate engineering frontiers, each awaiting its own breakthrough. The Force of Time shows them to be one problem wearing five faces: a G0 computation asked to live inside a G1 machine, separated by a lattice step, $\delta_G = 90.15$ ppm, that no fabrication can close. This is not a counsel of despair about quantum phenomena, which are real and magnificent. It is a precise statement about architecture: the present approach asks the G1 world to host G0 computation indefinitely, and the time-field will not permit it. The diagnosis is given here in full. Whether information at quantum density can be computed without crossing registers at every step is a different question — and its answer is reserved.

Figure 1. The coldest point on Earth — a quantum processor runs 182× colder than deep space, while its own machine and the life around it sit at ~300 K



A quantum processor at 15 mK runs about 182 times colder than deep space (2.725 K), while the machine that operates it — and the life around it — sits near 300 K. The computation and its environment are in different physical regimes.

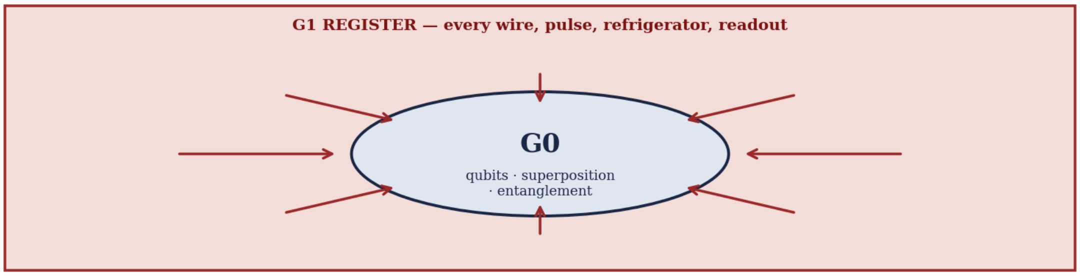
Figure 2. The wrong direction — as machines grow, the per-gate error drifts away from the threshold practical computing needs, not toward it (schematic of the reported trend)



Per-gate error against qubit count (schematic of the reported trend), set against the rate practical computing needs (below 0.01%). The gap widens with scale — the opposite of a technology approaching solution.

Figure 3. The register conflict — the computation lives in G0, the machine lives in G1, and the lattice distance between them does not close

A G0 COMPUTATION INSIDE A G1 MACHINE



each added qubit is a new surface where G1 intrudes — decoherence is the gap, δ_G = 90.15 ppm (= $5^{10}/(2^{4}\times3^{9}\times\pi^{3}) - 1$), made visible

The register conflict: a G0 computation (qubits, superposition, entanglement) surrounded by G1 hardware. Every control pulse, readout wire and thermal source is a G1 intrusion; decoherence is the register gap, δ_G = 90.15 ppm, made visible.

Propositions

P-QCD-1 — Quantum superposition and entanglement are G0-register phenomena, while every piece of hardware that builds, controls, reads or cools a quantum computer exists in the G1 register. This cross-register architecture is the primary source of all five structural problems.

P-QCD-2 — Decoherence is not a consequence of imperfect engineering. It is the conservation law $d\Sigma T=0$ restoring equilibrium when a G0 superposition is displaced inside a G1 environment. No engineering path leads to indefinite coherence inside such an environment.

P-QCD-3 — Cooling to 15 mK ($kT \approx 1.293\ \mu\text{eV}$) does not resolve the G0–G1 incompatibility; it suppresses G1 thermal noise (≈ 25.85 meV at 300 K) until G0 phenomena are detectable. The G1 environment remains — every control line, readout circuit and cable is a G1 intrusion the refrigerator cannot remove.

P-QCD-4 — The error-correction trap is a structural consequence of scale under register conflict. Each physical qubit added to protect a logical qubit increases the G1 intrusion surface of the G0 computation; the overhead does not asymptote to zero as qubit count grows — it grows.

P-QCD-5 — Measurement in quantum computing is a forced G0 → G1 register traversal, governed by the same conservation law as decoherence. The gap between the information encoded in a superposition and the information a G1 device can extract is a register gap, not a measurement-precision problem.

P-QCD-6 — The scalability inversion — quantum computing growing more fragile, not more robust, with size — is a direct consequence of the register conflict growing faster than the computational resource. The trend is structural and does not reverse under incremental engineering improvement.

A note on the numbers

A note on the numbers. Throughout this paper a value is given first as the plain physical reading and only then, in brackets, as its {2,3,5,π} form — the quiet stamp that the value sits on the lattice, never the explanation. The one value that carries the whole argument is exact: the G-bond step between registers, $\delta_G = 90.15$ *parts per million* $(= 5^{10}/(2^4\times3^9\times\pi^3) - 1)$*, the fixed lattice distance between the G0 and G1 registers. It is not an engineering tolerance and does not shrink with better fabrication. The thermal and temperature figures (2.725 K, 15 mK, 25.85 meV, 1.293 μeV) are read from the laboratory at the precision the laboratory reports them; they are physical measurements, not lattice claims. Where a figure is an industry range rather than a measured constant — the 1,000-to-10,000 physical qubits quoted per logical qubit — it is said plainly. A bare number that does not yet sit cleanly on the lattice means the address has not been read yet — never that the lattice has failed.*

A note on resolution

> *The Force of Time identifies the structural source of each problem described here, and also the conditions under which a computing architecture operating at quantum-level information density would not face them — an architecture that does not ask the G1 environment to host a G0 computation across a register gap at every step. That analysis is reserved. The diagnosis is offered freely; the remedy is not.*

References

[1] S. Daubney, *The Universal Force of Time — Master Compendium v5*, The Daubney Foundation (2026).

[2] NIST CODATA 2022 Recommended Values of the Fundamental Physical Constants, NIST (2024). https://physics.nist.gov/cuu/Constants/

[3] J. Preskill, *Quantum Computing in the NISQ Era and Beyond*, Quantum 2, 79 (2018).

[4] A. G. Fowler, M. Mariantoni, J. M. Martinis, A. N. Cleland, *Surface codes: towards practical large-scale quantum computation*, Phys. Rev. A 86, 032324 (2012).

[5] A. P. Vepsäläinen et al., *Impact of ionizing radiation on superconducting qubit coherence*, Nature 584, 551 (2020).

[6] S. Daubney, *The Universal Force of Time — DNA as the Universe's Native Computer*, The Daubney Foundation (2026), UFOT_DNAComputerArchitecture_Rev2.pdf.

The Universal Force of Time · Stephen Daubney · The Daubney Foundation · 2026

Contact: thedaubneyfoundation@gmail.com