

## **Ion Traps**

IONQ.com IonQ Forte

Quantinuum

Quantinuum.com (Honeywell)

Sandia

Sandia.gov Ion trap foundry. Processor called Enchilada

## **Superconductors**

IBM: Free quantum computing in the cloud on 127 qubit processor  
quiskit quantum software

2023: Wants to build a 100,000 qubit processor

2023: Get off the hype train

2023: Osprey w/433 qubits

2023: Heron w/133 qubits

2024: Focus on noise. Making better qubits

## **Google Quantum AI 'Roadmap'**

2022: Quantum Error correction, 100 qubits,  $10^{-2}$  Logical Qubit Error Rate

2025: Long Lived Logical Qubit, 1000 qubits,  $10^{-6}$  Logical Qubit Error Rate

?: Still VaporWare

## **Neutral Atoms**

QuEra Quantum

2024 Neutral atoms, Aquila Processor w/256 qubits.

This is an Analog Processor, i. e. not scalable w/out change in paradigm

Navigate to "Understanding Aquila" for roadmap.

## **Spin qubits in Silicon**

HRL Laboratories/quantum

2024 Spin qubits on Silicon

## **Photonics**

PsiQuantum

2024 Photonic Quantum Computing. Extremely ambitious given what looks like an unproven design. Anybody's guess as to how fast and how far this will go.

## **Amazon Braket**

One single place to find links to some of the Quantum Companies

## **Infleqtion**

Builds and sells hardware needed for Ion Trap and Atom Trap devices

## **Quantum**

Builds and sells classical controllers for quantum processors.

## **Machines:**

Example of quantum code to factorize the number 21. Requires > 1000 qubits, 400 fault tolerant gates, 14 magic-state initializations. Quantum Control at scale!