Superconducting Quantum Circuit Prototyping Facility

Qufab

- A prototyping line for devices and circuits used in superconducting quantum computers
- Supports prototyping of superconducting qubits, control circuits, and 3D integration

Covers everything from R&D to prototyping of circuits for commercial applications

Device Fabrication Service

- Cleanroom: 720 m², Class: Mainly 1000
- 4-inch prototyping line
- Key process and measurement equipment: **> 50 units**
- Thin film: Nb, Al, Pd, Mo, etc.
- Superconducting qubits fabricated by angled deposition
- i-line stepper and electron beam lithography (lithography down to 20 nm)
- Etching systems for fluorine- and chlorine-based



The Qufab facility (partial view)

processes, compatible with various materials

Lineup of Prototyping Services



- 9-layer superconducting multilayer interconnects
- **TSV** (Through-Silicon Via)
- Superconducting bump bonding
- Superconducting 3D integration



Oblique angle deposition system

Facility Access :







Global Research and Development Center for Business by Quantum-AI Technology (G-QuAT), AIST

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AST

Create the Future, Collaborate Together