SemiQon™

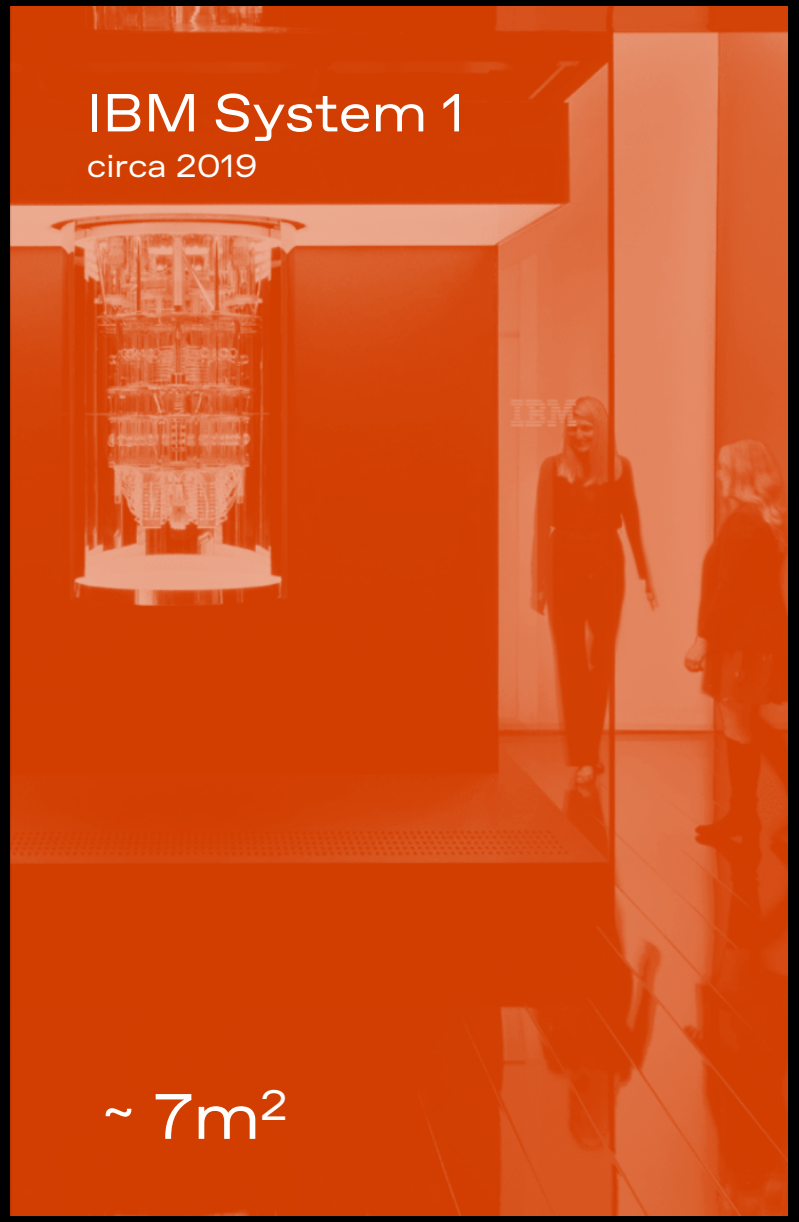
SemiQon™

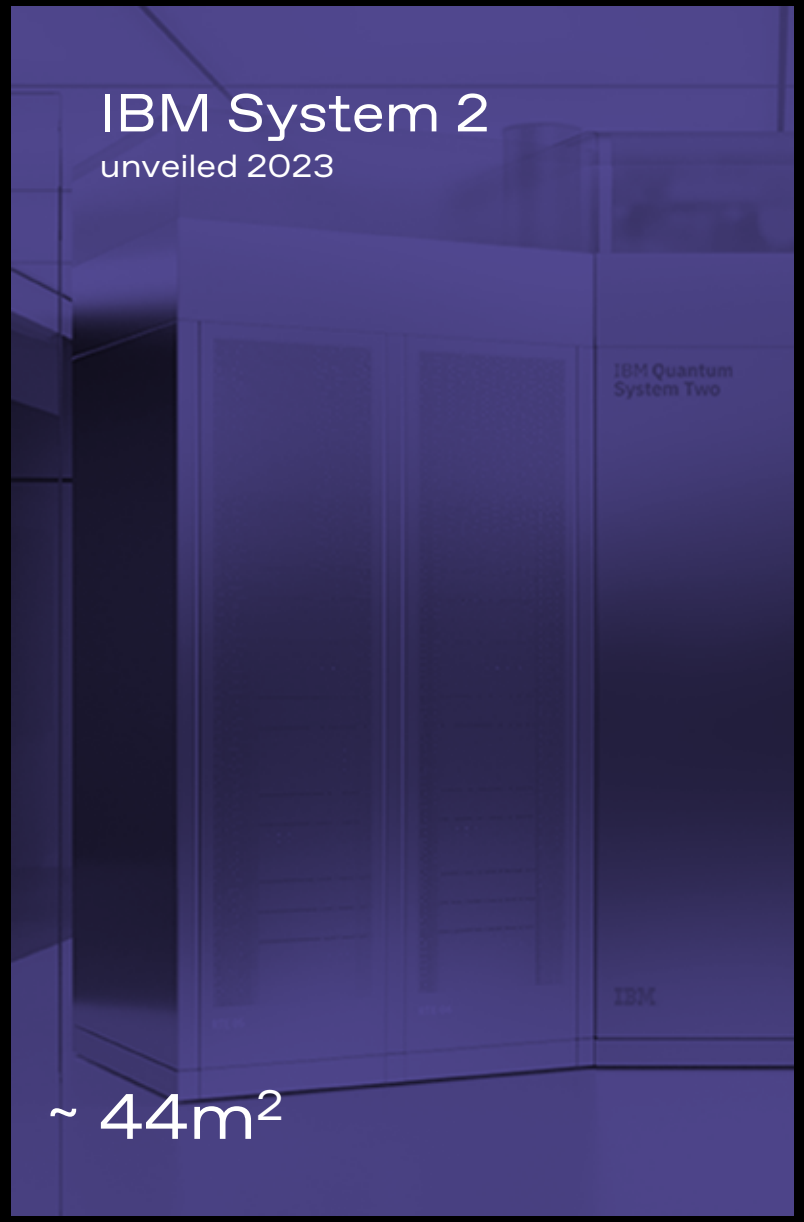
We power quantum computers for the million-qubit era.

THE PROBLEM

Quantum computers keep getting bigger as they get better

The complexity of control electronics, wiring, and cooling becomes the dominant scaling bottleneck.





SemiQon™

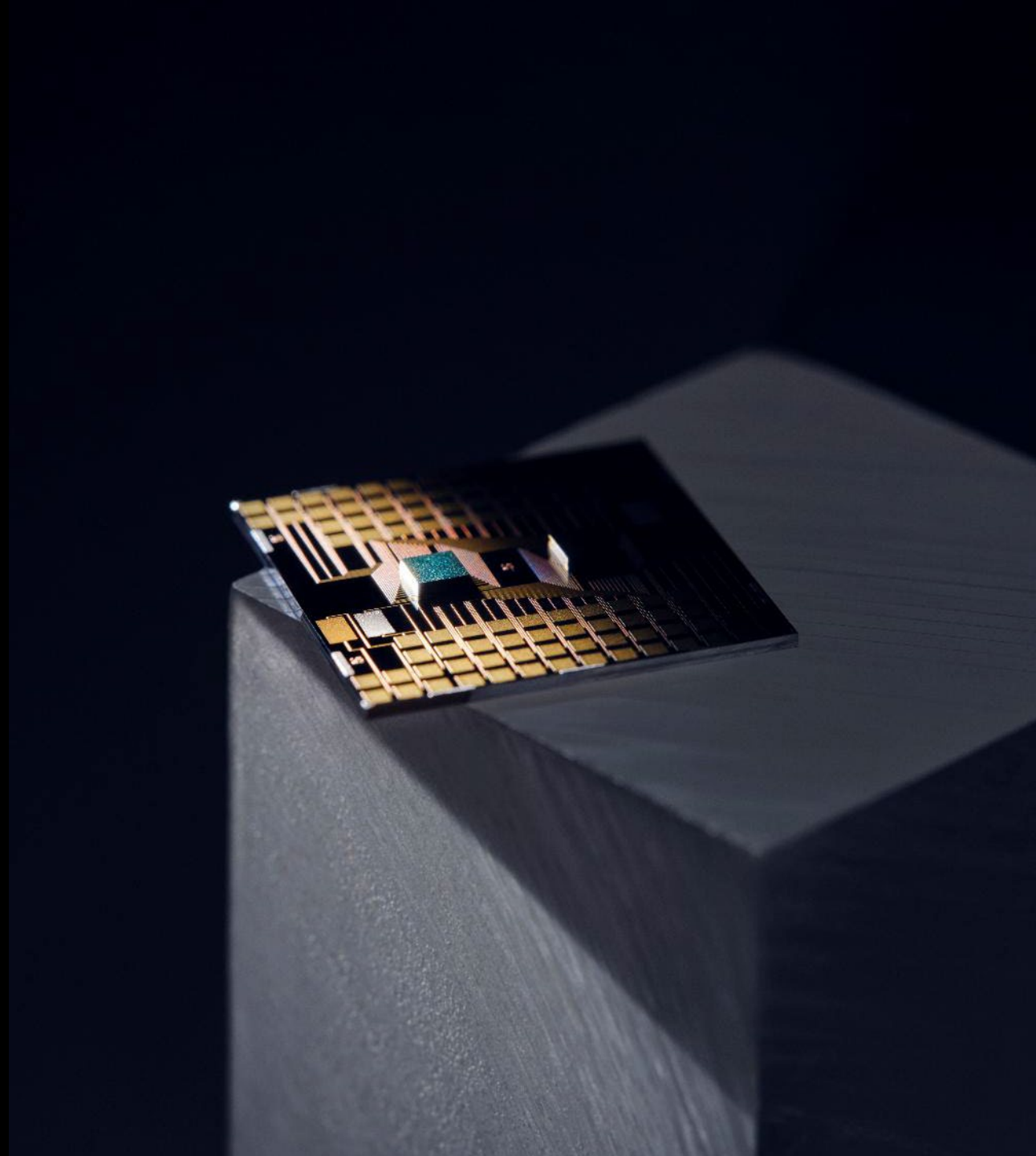
THE SOLUTION

Quantum electronics on a fingertip

Scalable, sustainable, and cost-effective Quantum Integrated Circuits

- Control electronics converted to a chip inside the cryostat
- Eliminates bulky room-temperature electronics and complex wiring
- Enables compact, cost-effective, and scalable quantum systems

SemiQon™



Company overview

SemiQon™

COMPANY OVERVIEW

SemiQon in numbers

2023
Founded

Finland
Headquarters

30+
Employees

25
Engineers & PhDs

>10M€
Fundings

11
Patents filed

10+
R&D kits delivered

1 000+
Quantum dots multiplexed with cryo-CMOS

SemiQon™

SemiQon team

Executive and founding team

Dr. Himadri Majumdar
CEO, Board Member

Dr. Janne Lehtinen
Chief Technology Officer, Board Member

Prof. Mika Prunnila
Chief Research Officer

Markku Kainlauri
Chief Operations Officer

Board

Dr. Antti Vasara
Chair of the Board

Jussi Sainiemi
Director

Advisory

Prof. Prineha Narang
UCLA, USA

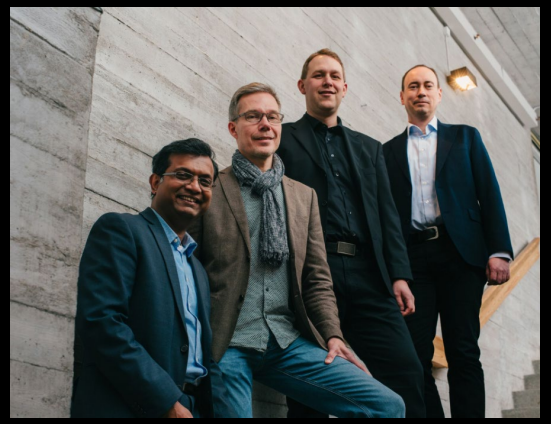
Prof. Juha Muhonen
Jyväskylä University, Finland

SemiQon™

Our technology & capabilities

SemiQon™

Milestones to date

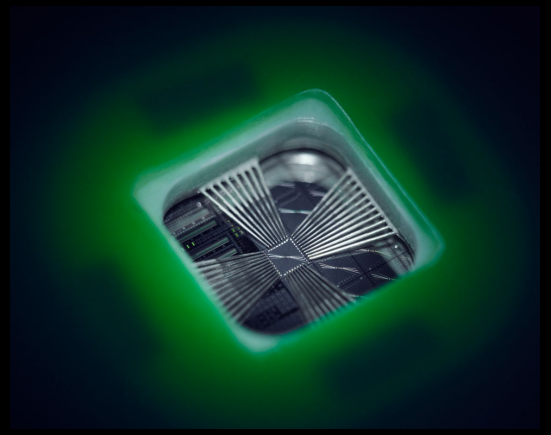


SemiQon enters new growth phase after celebrated its three-year journey

FEB 2026

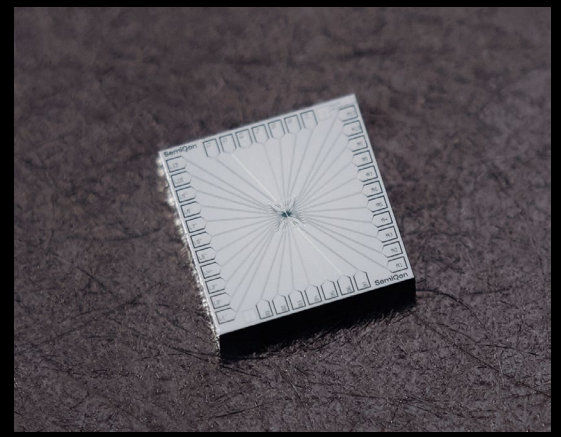
1st prize for cryo-CMOS chip innovation by EARTO

OCT 2025



Launched first ever CMOS transistor fully optimized for cryogenic conditions

NOV 2024



Delivered 4 quantum-dot chips to partners

MAR 2024

SemiQon™

OUR TECHNOLOGY & CAPABILITIES

What sets us apart

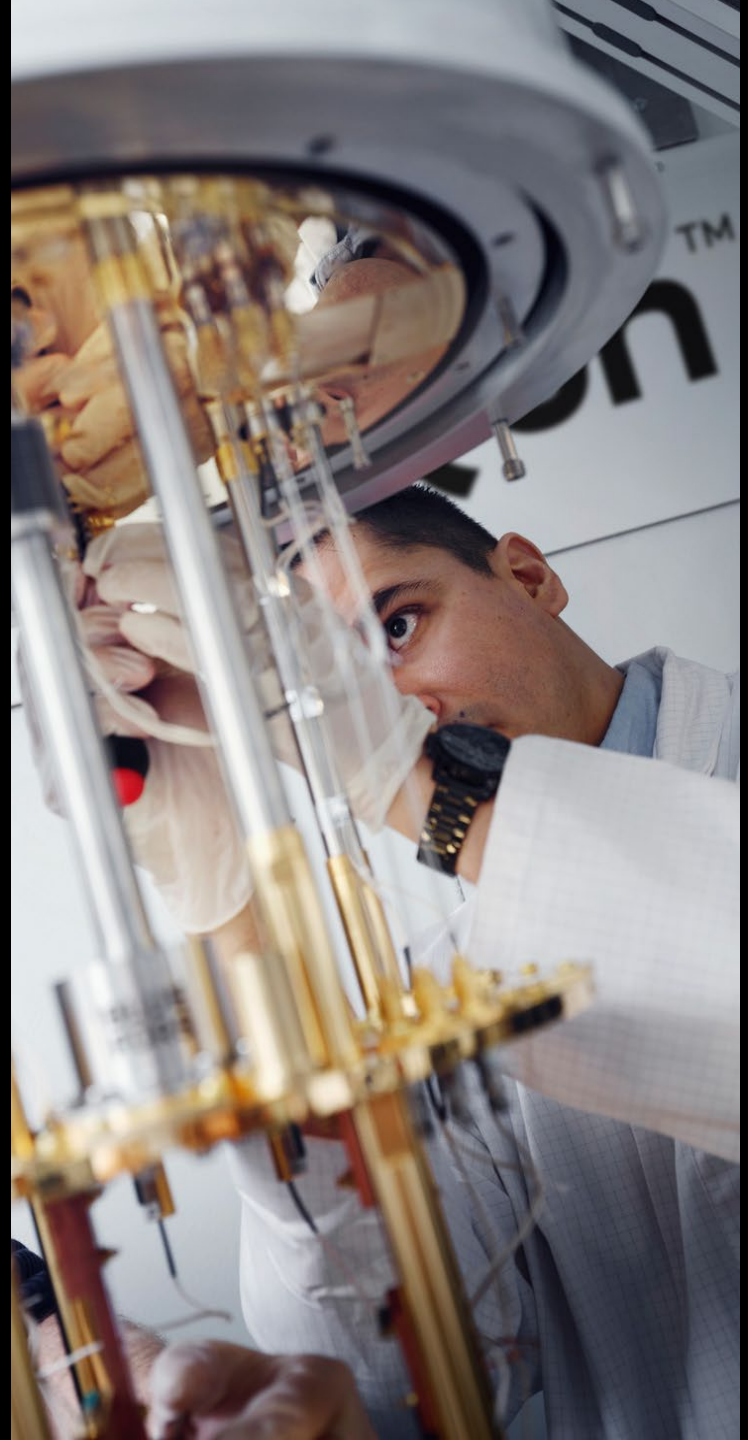
Vertically integrated operation

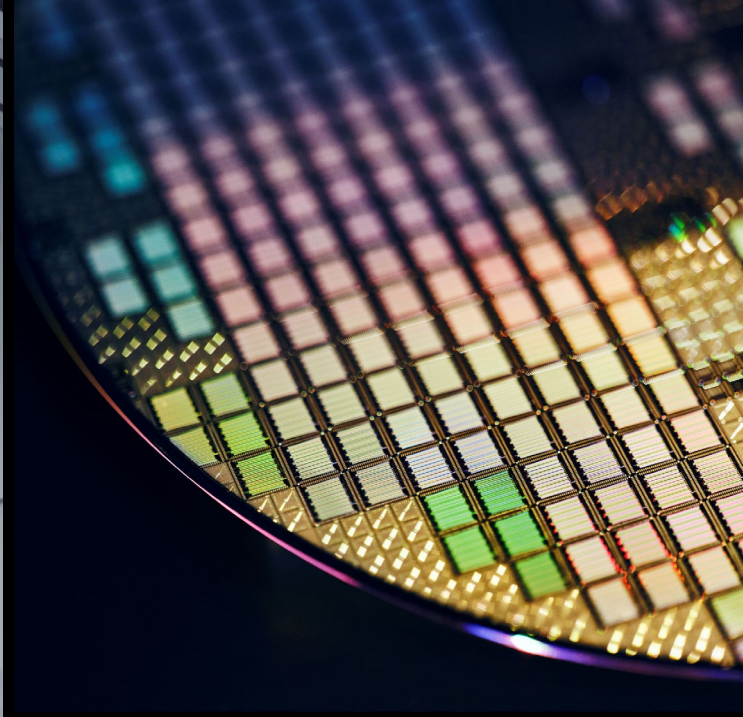
- In-house operations and full ownership of IP of design, manufacturing and testing.
- This operating model enables 3–4x faster tape-outs and 4–5x lower development cycle costs compared with larger foundries.

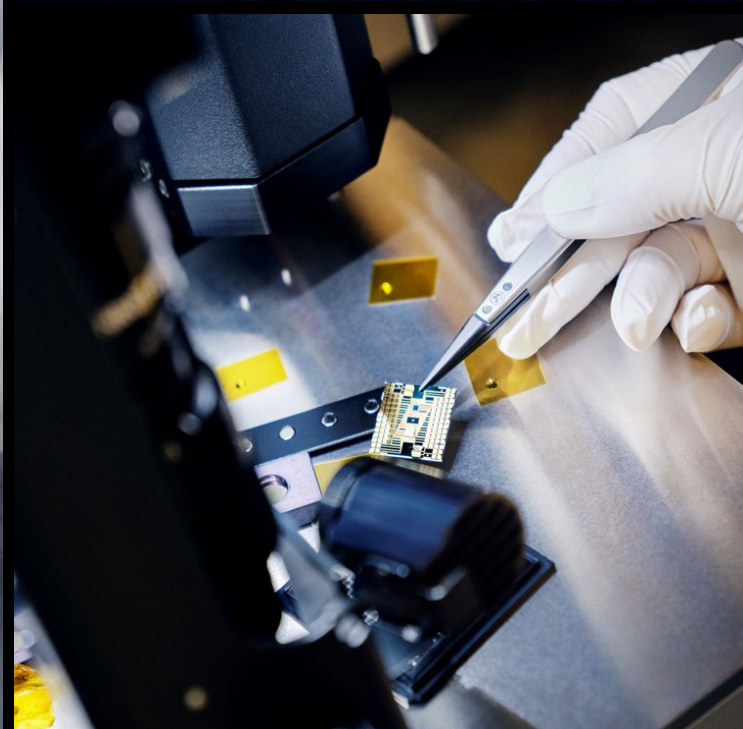
Superior technology

- Silicon-based Quantum ICs with a proprietary integrated on-chip qubit control platform leveraging cryogenic CMOS for control, readout, and supporting electronics.
- Cryogenic CMOS operating below –272 °C with ultra-low power consumption, up to 1,000× lower than competing solutions.

SemiQon™



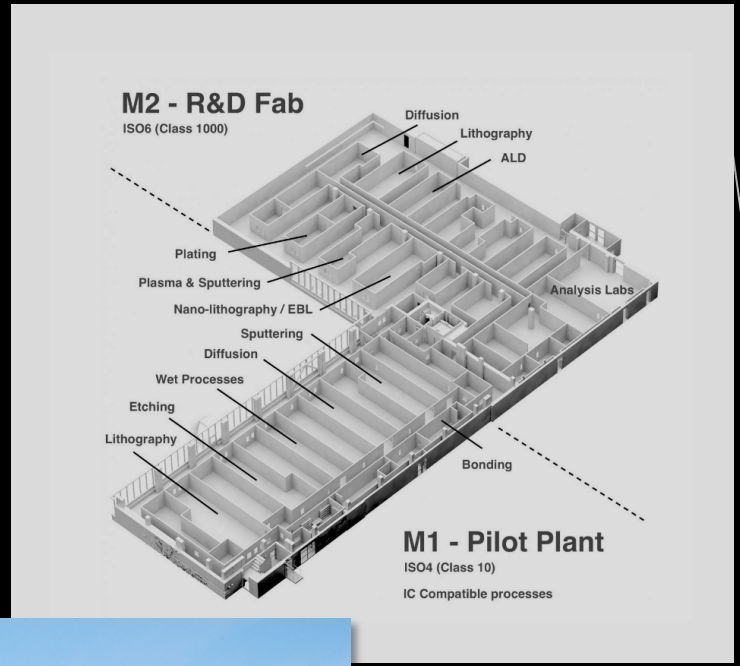




OUR TECHNOLOGY & CAPABILITIES

Fabrication facility

Based in Espoo, Finland, SemiQon benefits from direct access to advanced design and fabrication infrastructure, enabling rapid development and strong quality control.



Micronova in Espoo Finland

- Largest R&D cleanroom in the Nordic countries.
- Total CR area 2600 m^2
- Hosted by VTT & Aalto University
- Wafer size upgrade from 200 mm to 300 mm (2028)
- Further 3x expansion of manufacturing capability through €0.5B investment at the new Kvanttinova facility from 2028

SemiQon™

OUR TECHNOLOGY & CAPABILITIES

Measurement infrastructure

Measurement lab in the premises of Finland's national metrology institute

MIKES metrology building — purpose-built metrology facility

Locates in Otaniemi close to Micronova

SemiQon 25m^2 dedicated lab space in shielded room

- Possess two cryostats
- MPI wafer level automated room temperature probe station
- High-end measurement electronics

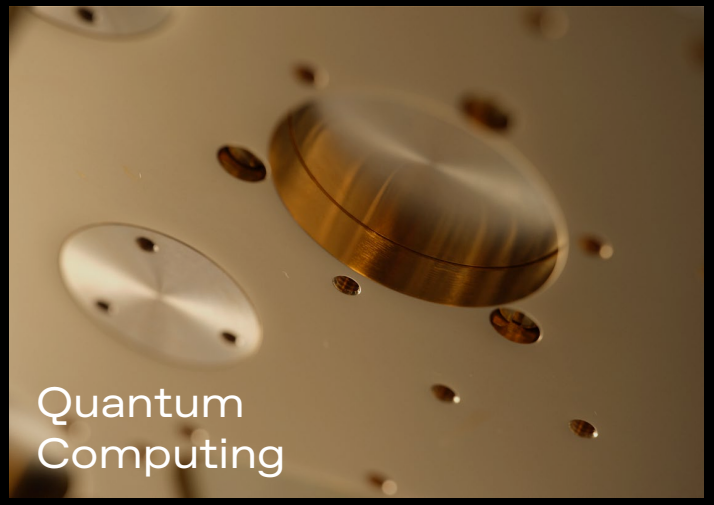
SemiQon™

Available products

SemiQon™

THE AMBITION

Application in multiple domains

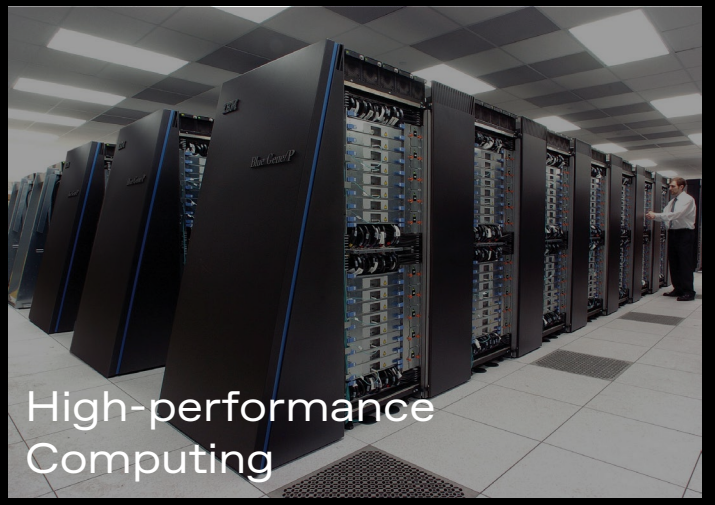


Quantum integrated circuits and cryogenic peripherals:

- Control electronics
- Readout electronics
- Cryogenic memory
- Cryogenic signal and data processing
- Packaged quantum-dot R&D kits

Cryogenic CMOS electronics for

- Telescopes (bolometer, infra-red, x-ray)
- Lunar and Mars exploration5G communication



Cryogenic CMOS chips integrated into CPU/GPU/QPU

- Supercomputers
- Data centre
- AI Servers

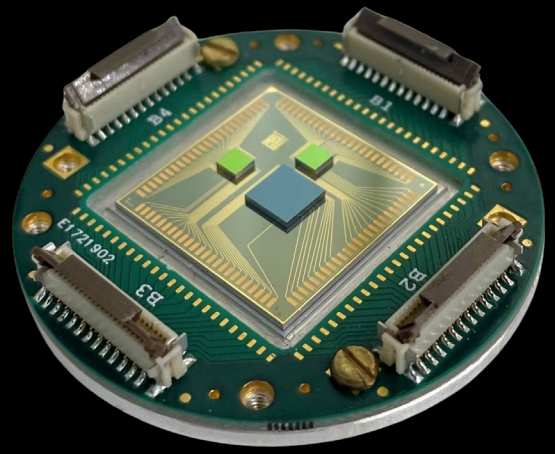
SemiQon™

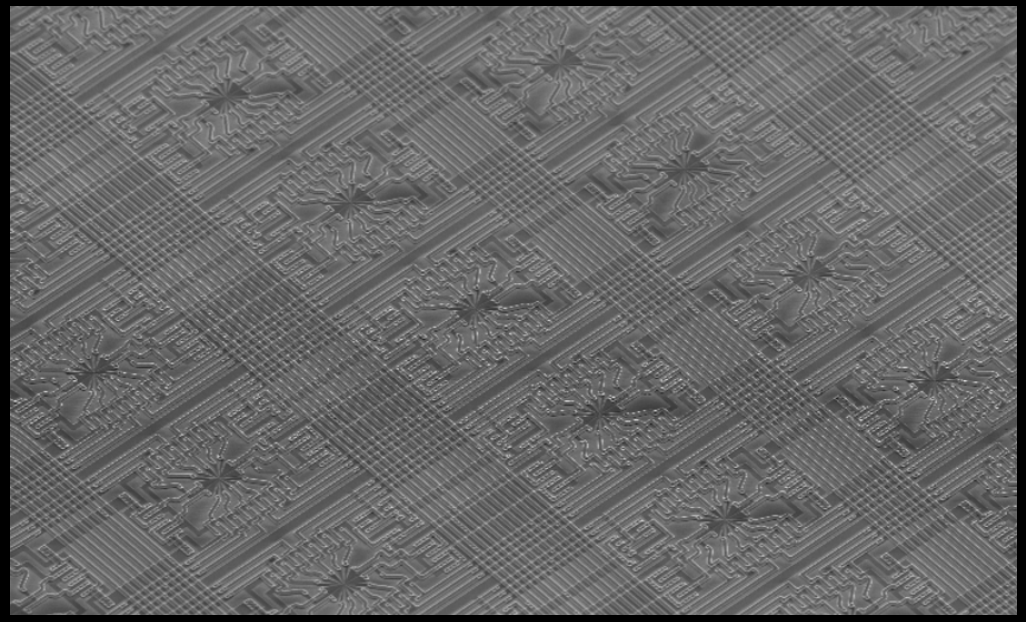
AVAILABLE PRODUCTS

Cryo-optimized CMOS electronics

SemiQon delivers scalability and power efficiency to quantum computing and space applications with our cryo-optimized CMOS electronics.

- High efficiency: 1,000 × lower power consumption than traditional control electronics
- 30% infrastructure cost reduction for quantum hardware manufacturers
- Serves as multiple electronics functions: RF switch, Multiplexer/De-multiplexer, Amplifier, Memory elements, Quantum-dots



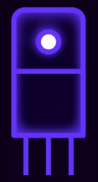


SemiQon™

OUR TECHNOLOGY

Roadmap

SEMIQON CRYO-OPTIMIZED CMOS

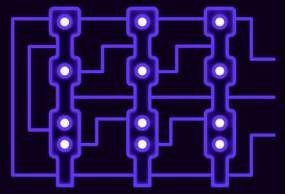


CRYO-OPTIMISED TRANSISTOR

2024

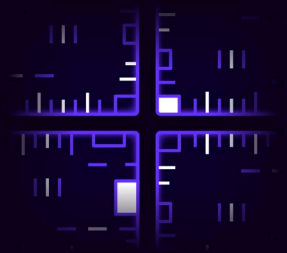
LOW VDD CRYO-CIRCUITS

2025



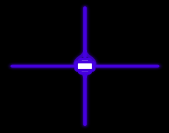
SCALABLE I/O

2026

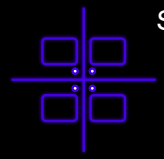


CRYO-MICRO-CONTROLLER

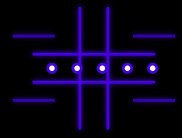
2027



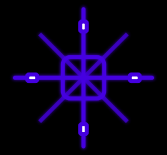
SUPERCONDUCTING QPU



SEMICONDUCTOR QPU



ION TRAP QPU



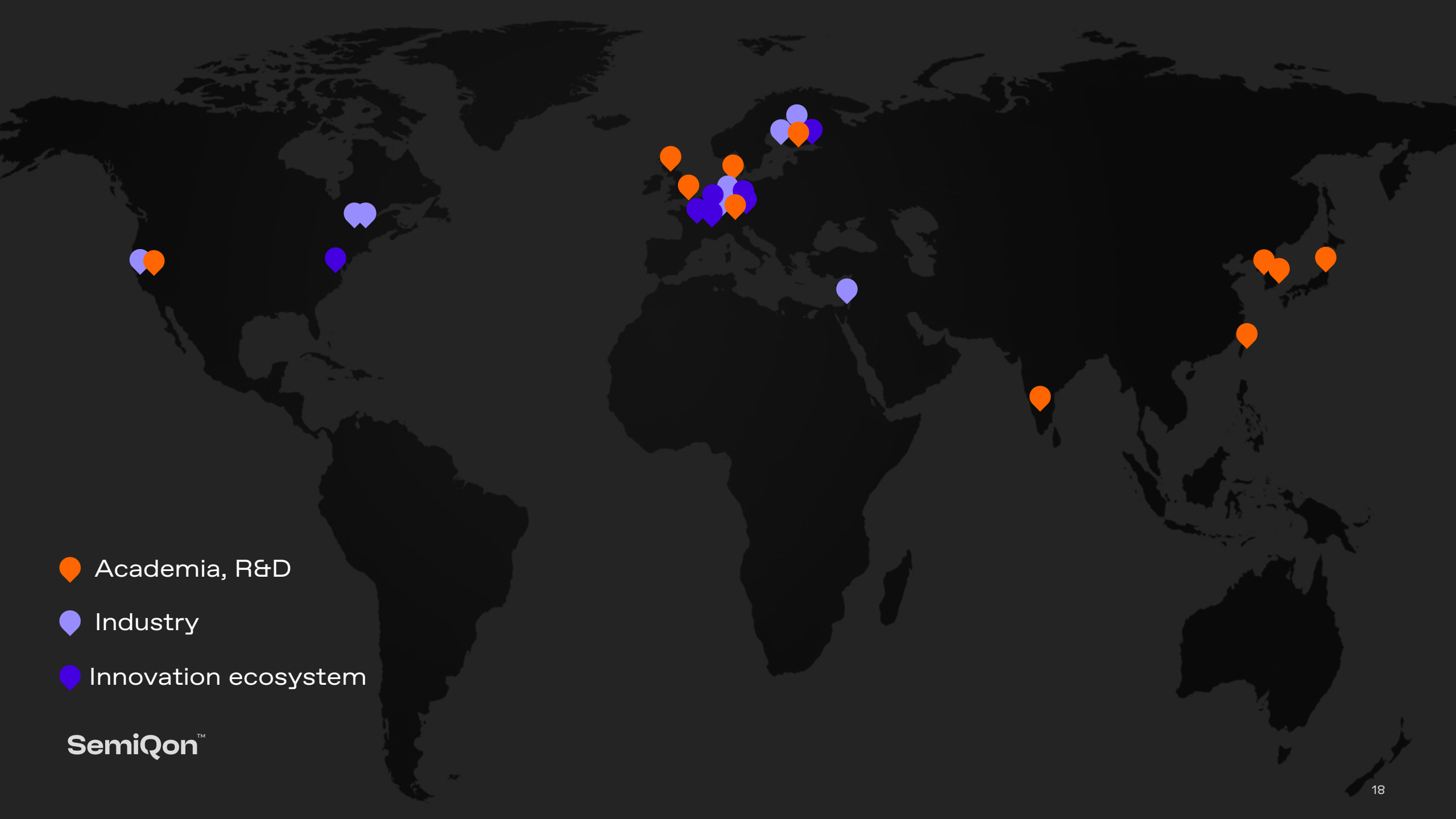
PHOTONIC QPU

COMPATIBLE WITH ALL MAJOR QUBIT MODALTIES

SemiQon™

Global network

SemiQon™



SemiQon™

SemiQon™