

SemiQonTM

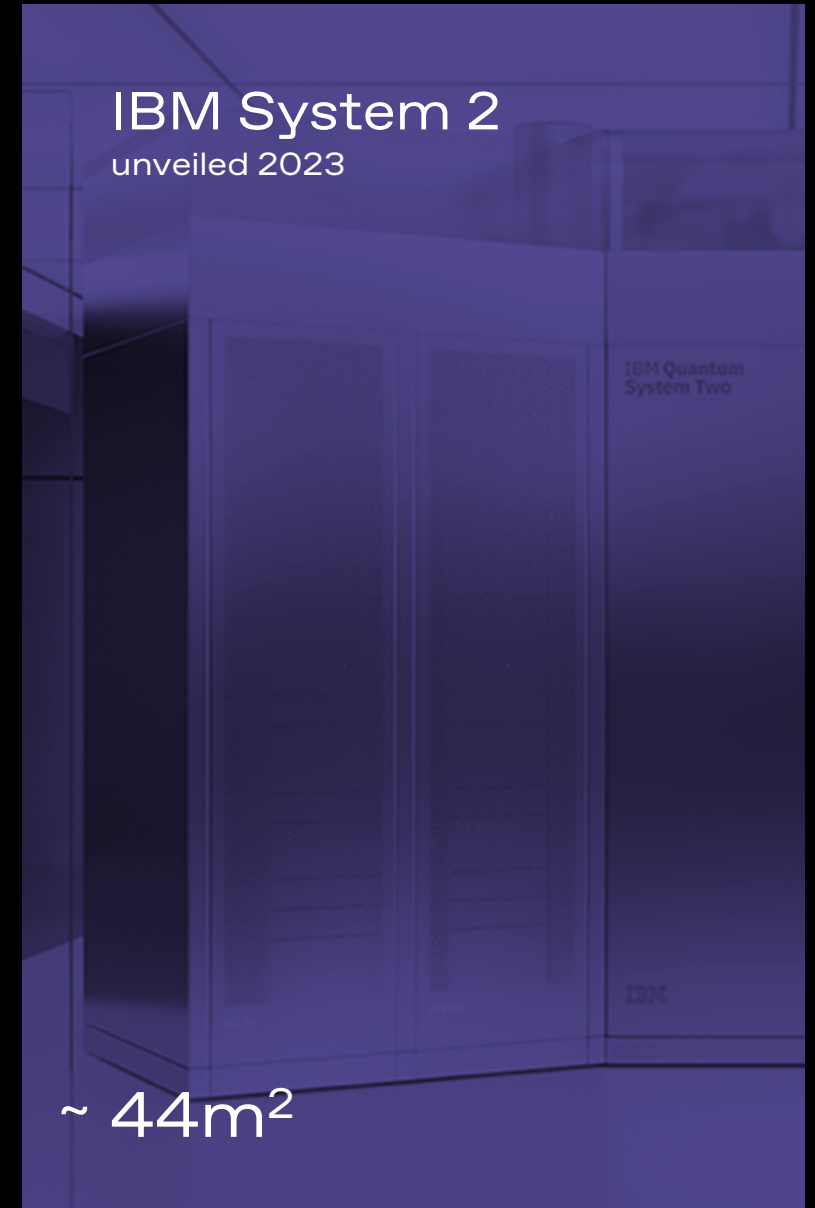


We power quantum
computers for the
million-qubit era.

THE PROBLEM

Quantum computers keep getting bigger as they get better

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



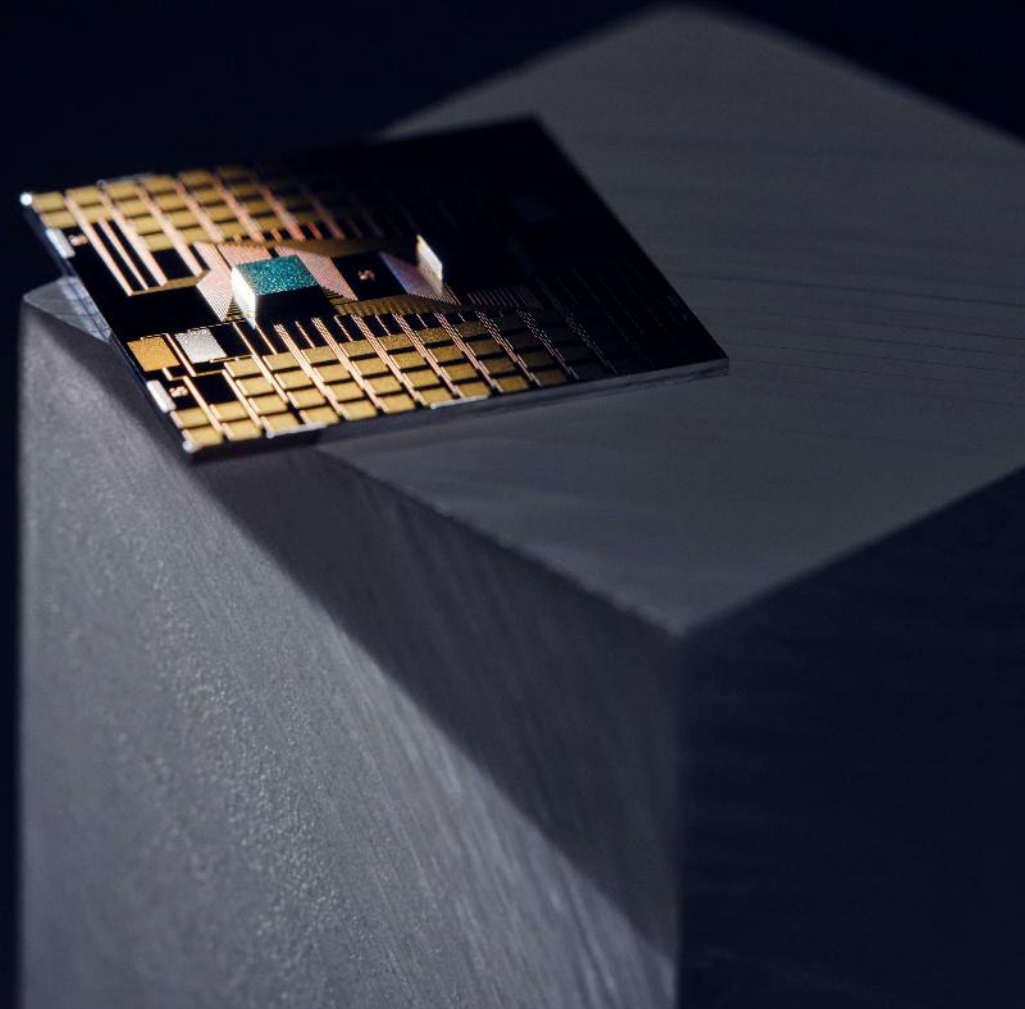
THE SOLUTION

Quantum electronics on a fingertip

Scalable, sustainable, and cost-effective Quantum Integrated Circuits

- Control electronics converted to a chip inside the cryostat, eliminating bulky room-temperature wiring
- Built on proven CMOS, optimised to run reliably at sub-kelvin to millikelvin temperatures
- Designed as a modality-agnostic platform compatible with major qubit technologies

SemiQon[™]



Company overview

COMPANY OVERVIEW

SemiQon in numbers

2023

Founded

>10M€

Fundings

SemiQon™

Finland

Headquarters

11

Patents filed

+30

Employees

10+

R&D kits
delivered

27

Engineers & PhDs

In 2026

First commercial
customer shipment

COMPANY OVERVIEW

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



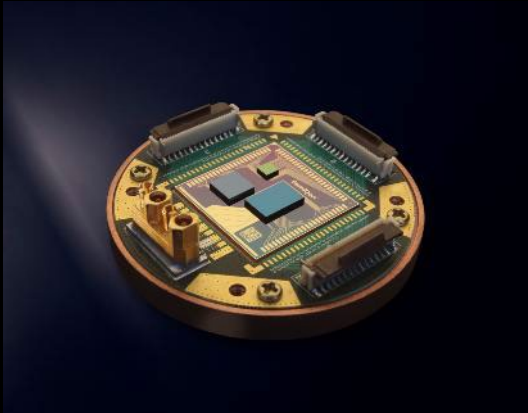
Prof. Prineha Narang
UCLA, USA



Prof. Juha Muhonen
Jyväskylä University, Finland

Our technology & capabilities

Milestones to date



Productization:
SemiQon ships first
commercial cryo-
CMOS orders

APRIL 2026



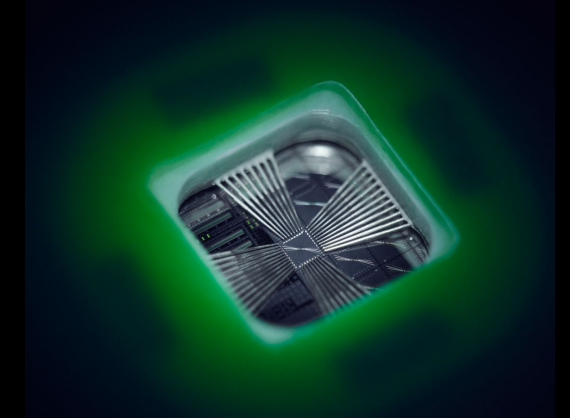
SemiQon enters new
growth phase after
celebrated its three-
year journey

FEB 2026



1st prize for cryo-
CMOS chip innovation
by EARTO

OCT 2025



Development of first
ever CMOS transistor
fully optimized for
cryogenic conditions

NOV 2024

OUR TECHNOLOGY & CAPABILITIES

What sets us apart

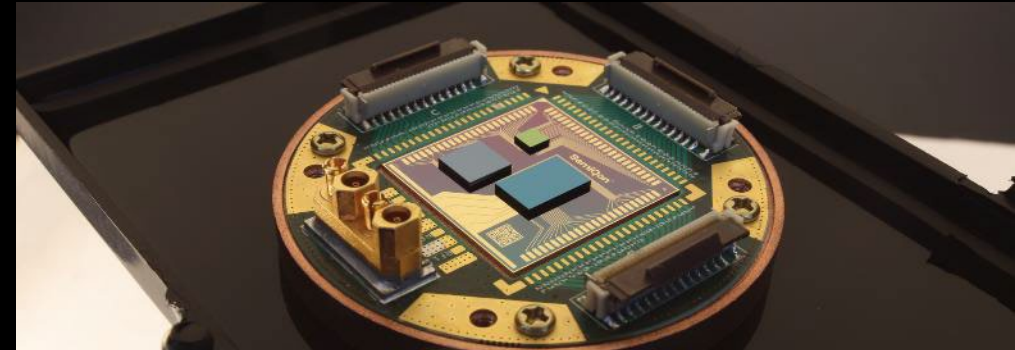
Vertically integrated operation

- We **design**, **manufacture**, and **test** cryo-CMOS electronics in-house, with full ownership of design, manufacturing, and testing IP.
- This model enables 3–4x faster tape-outs and 4–5x lower development cycle costs versus larger foundries.
- We **collaborate closely** with early adopters, running fast tape-outs tailored to each partner's needs.

Fully optimized for cryogenic operation

- World's first cryogenic CMOS transistor operating reliably at milli-kelvin temperatures
- Power consumption and heat load **1,000x** lower than conventional electronics at cryogenic conditions
- Proprietary on-chip qubit control, designed for the cryogenic environment

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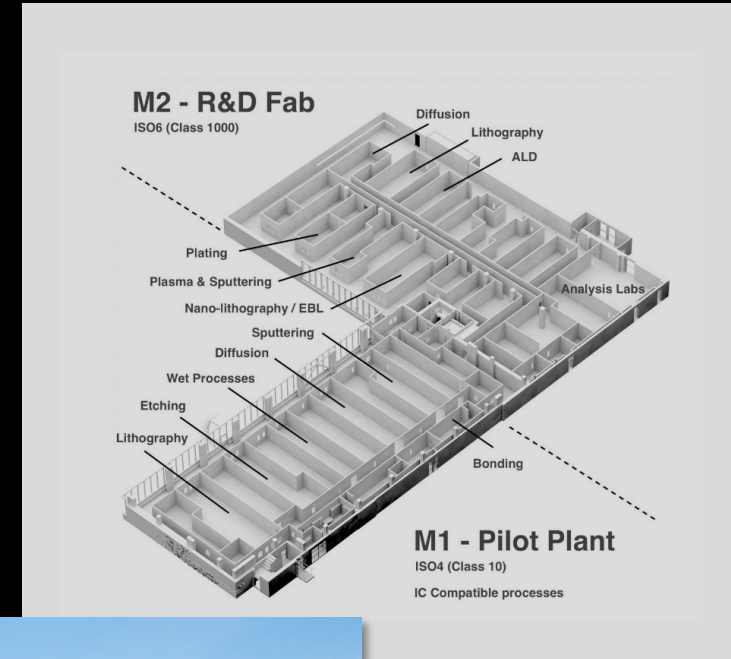


Fabrication facility

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 m²
- 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



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 25m² dedicated lab space in shielded room

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

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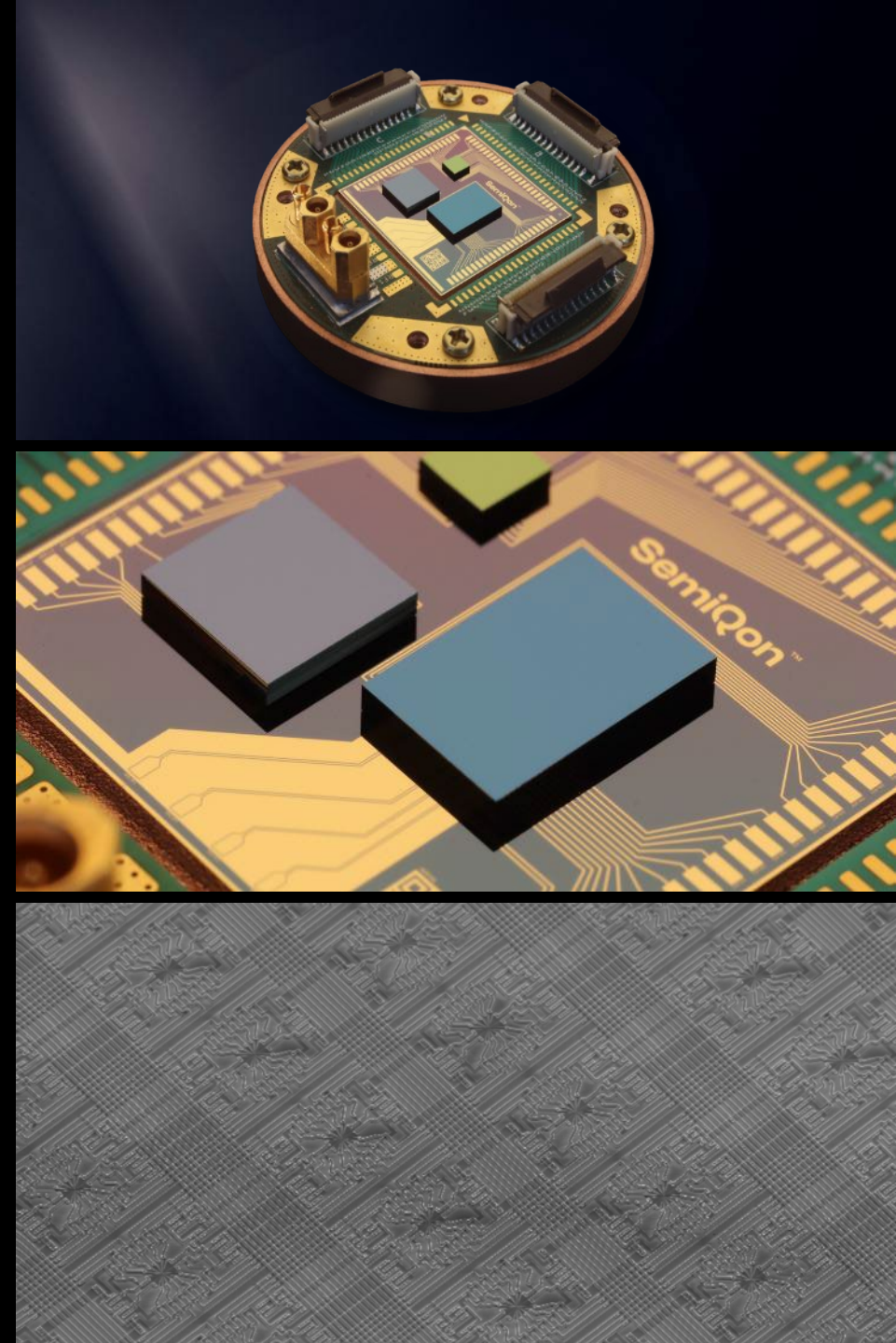
Available products

AVAILABLE PRODUCTS

Cryo-optimized CMOS electronics

SemiQon brings scalability and efficiency to quantum computing with ultra-low dissipation cryo-CMOS that moves qubit control inside the cryostat.

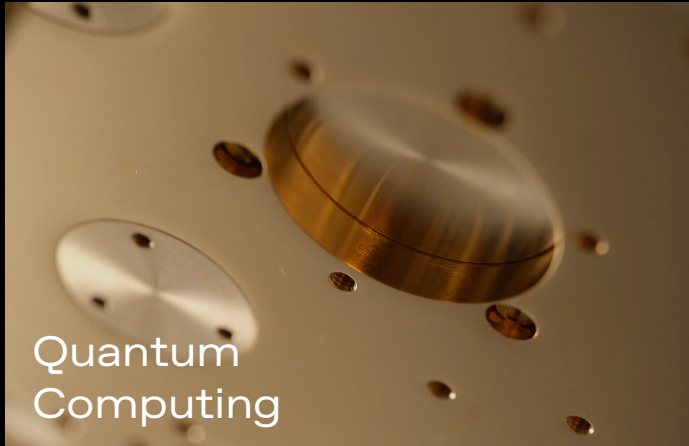
- High efficiency: $1,000\times$ lower power consumption than traditional control electronics
- 30% infrastructure cost reduction for quantum hardware manufacturers
- Cryogenic-ready packaging for seamless cold integration
- Serves as multiple electronics functions: RF switch, Multiplexer/De-multiplexer, Amplifier and Memory elements



Roadmap



Application in multiple domains



Quantum Computing

Quantum integrated circuits and cryogenic peripherals for major qubit technologies, including superconducting, ion-trap, photonic, and spin qubit:

- Control electronics
- Readout electronics
- Cryogenic memory
- Cryogenic signal and data processing



Space Electronics

Cryogenic CMOS electronics for:

- Telescopes (bolometer, infra-red, x-ray)
- Lunar and Mars exploration 5G communication
- SNSPD

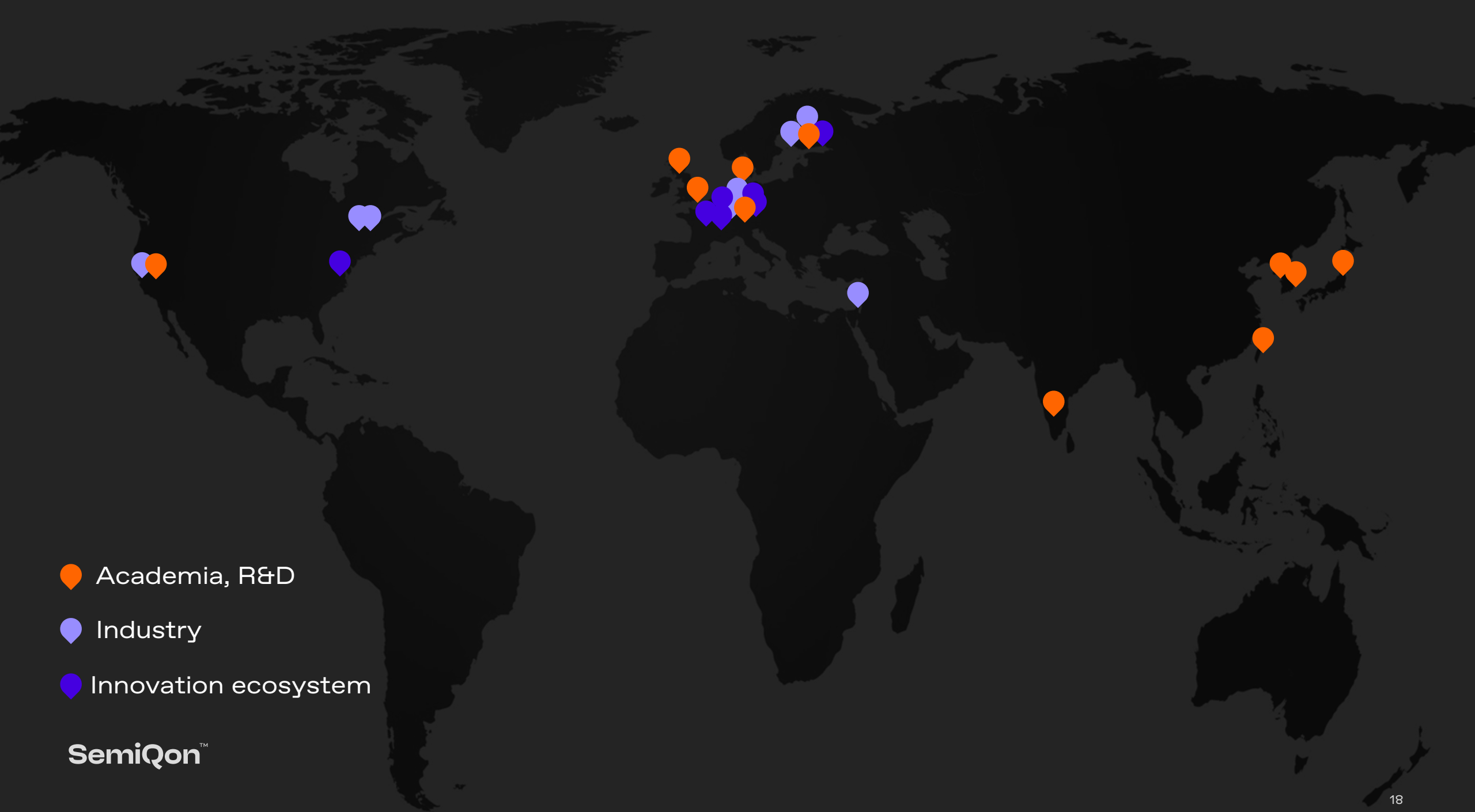


High-performance Computing

Cryo-CMOS PDK under development for integration into CPU/GPU/QPU:

- Supercomputers
- Data centre
- AI Servers

Global network



- Academia, R&D
- Industry
- Innovation ecosystem

The background of the image is a dark, deep blue to purple gradient. It features a series of bright, diagonal, blurred light streaks that create a sense of motion and energy, resembling light trails or a stylized representation of a flag's stripes.

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