



Launch of Q-PLANET, European Pilot Line to Industrialize Neutral Atom Quantum Chips

July 13, 2026

Q-PLANET is a €50 million European Quantum Chip Stability Pilot Line coordinated by Pasqal and co-funded by the EU Chips Joint Undertaking and National/Regional Authorities across 11 Member States to develop industrial-grade chip components for neutral atom quantum computing, sensing, and communication to accelerate Europe's quantum industrialization, user adoption and supply chain resilience.

Belgium (Brussels), 13 July 2026. Last two days marked the official kick-off of Q-PLANET (Quantum Pilot Line for production of Advanced chips for Neutral atom European Technologies), one of the 6 European Quantum Chip Stability Pilot Lines co-founded by the European Union and the Chips Joint Undertaking and National and Regional Authorities of the participating Member States.

Coordinated by Pasqal, a global leader in neutral atom quantum computing, the consortium brings together 28 European RTOs, industry partners, and academic research groups across 11 EU Member States, with the goal of strengthening Europe's leadership and resilience in the quantum supply chain. Q-PLANET has a total budget of €50 million. Structured under a six-year Framework Partnership Agreement with the European Chips Joint Undertaking, the initial three-year phase kicked off on July 8-9th. A second three-year stage is expected to follow to notably boost user uptake of the services and products developed under the first three years of the Pilot line as well as to keep increasing the industrial maturity of the technologies developed under it.

Quantum technologies have become a highly strategic domain with economic and societal value to users rising sharply. Applications span quantum computing for drug and materials discovery, quantum sensing for navigation, timing and earth observation, and quantum communication for highly secure networks.

However, as highlighted by the European Quantum Strategy, unlocking the full potential of quantum technologies requires achieving industrialization at scale by 2030. Today, industrialization at scale is held back by a lack of scalable and replicable manufacturing processes hampering mass production, systematic standardized design, calibration, control and testing frameworks; and energy efficiency monitoring assessment in the production cycle of quantum technologies. Addressing these gaps are some of Q-PLANET's priorities.

The six complementary Quantum Chip Stability Pilot Lines launched under Chips JU, each focused on a distinct hardware, collectively working to advance quantum technologies industrialization across computing, communications and sensing. Within this portfolio, Q-PLANET is the dedicated pilot line for neutral atom quantum technology. It will design, fabricate, assemble and test industrial-grade chip-based components, including process and design optimization to establish a robust foundation for scalable, replicable, and high-performing chip-based components including on-laser chips. This will be key to improve miniaturization, scalability, technological performance, cost effectiveness, large-scale industrial deployment, boost users' adoption while improving the coherence properties that determine quantum performance.

In its first three-year phase, Q-PLANET will advance a set of critical components: lasers at four key wavelengths (461 nm, 698 nm, 795 nm and 1013 nm), atom chips for quantum sensing and computing, and microfabricated vapor cells for atomic clocks and field sensors. These components are expected to progress from TRL 4 to TRL 6 over three iterative design, fabrication and test cycles. Q-PLANET will also establish a route from laboratory to industrial fabrication with the establishment of standardized Process Design Kits (PDKs) and Assembly Design Kits (ADKs), which will lower entry barriers for startups and SMEs and lay the foundation for companies to build quantum know-how.

"The Chips JU currently supports a portfolio of actions that will develop quantum functionalities based on six technological platforms ranging from superconducting and photonic approaches to the neutral atom technology that is the focus of the Q-PLANET project. This diverse project portfolio strengthens Europe's technological sovereignty in quantum technology and builds the foundations of a new industry."

Jari KINARET, Chips Joint Undertaking, Executive Director



"Q-PLANET is a decisive step toward the EU's 2030 quantum ambitions. By pooling scientific and industrial expertise across Europe, we are building a pan-European quantum-chip manufacturing backbone based on neutral atom technologies, from products to applications. Q-PLANET will contribute to accelerating quantum industrialization at scale, strengthen Europe's quantum-chip supply chain resilience, and help ensure breakthrough technologies reach the market, while ensuring a limited low environmental footprint."

Alexandra PAUL, Pasqal, Q-PLANET Coordinator



About the European consortium partners From Austria

Silicon Austria Labs (SAL).

SAL, Austria's top research center for Electronics and Software Based Systems with locations in Graz, Villach and Linz, leads the work package on chip-based laser components at 461 nm and is responsible for the design and fabrication of high-speed modulators in Aluminum Nitride (AlN), assembly and electronics for these components, and CMOS-integrated driving electronics for the laser sources and amplifiers. SAL is also involved in initiatives within the first pillar of the European Chips Act including the DECIDE Design Platform and the AT-C3 Austrian Chips Competence Centre.



From Belgium

iQrypto SRL.

iQrypto leads the work package on processes, testing and methodologies for the pilot line, building on its Aquila software stack to develop a common middleware and standardized Linux API that lets end users interact with the electronic control systems of quantum components in a uniform, transparent and scalable way. iQrypto also contributes FPGA-based control electronics for high-speed modulators in the work package on enhancing electronic components.

From Denmark

Technical University of Denmark (DTU) and Qpurpose ApS.

DTU contributes through its DTU Nanolab cleanroom, with more than 30 years of experience processing photonic materials, acting as foundry for SiN passive elements at 461 nm and 795 nm and leading the work package on characterization tools. Qpurpose, a 2022 spin-off from the Center for Quantum Mathematics, contributes quantum optimization algorithms and design support across multiple wavelengths.

From Finland

VTT Technical Research Centre of Finland.

VTT leads the work package on packaging activities and acts as foundry and test partner for SiN passive optical elements at 1013 nm, including PDK development for 1013 nm SiN devices. VTT is packaging partner for all laser systems on chips, contributing optimized low-loss fiber pigtailling, ADK development, and active chip packaging including chip-to-fiber assembly. VTT is co-hosting the modular and scalable backend pilot line with DTU.



From France

PASQAL, Université de Strasbourg (UNISTRA), QPERFECT, III-V Lab, Centre National de la Recherche Scientifique (CNRS, with FEMTO-ST, Laboratoire Temps Espace (SYRTE) and Laboratoire Albert Fert), Weling, Safran Electronics & Defense, Centrale Lille Institut, ONERA and Thales.

Pasqal coordinates the project and leads work on chip-based laser components at 1013 nm, integrating components at 795 nm and 1013 nm into its neutral atom Quantum Processing Units. UNISTRA operates a fully integrated laser system for ytterbium qubit control with more than 10 distinct laser sources stabilized to an optical frequency comb reference, and conducts comparative testing of Q-PLANET laser sources for intensity and phase noise, linewidth, and long-term stability. QPERFECT, founded in 2023 and based at the European Center for Quantum Sciences (CESQ) in Strasbourg, contributes its MIMIQ quantum simulation tool to model expected component specifications, validate measured performance, and benchmark algorithm fidelity. III-V Lab is the design and foundry for III-V laser sources and amplifiers at 795 nm and 1013 nm, including chip-on-carrier assembly and component characterization. CNRS contributes through three departments: Laboratoire Temps Espace (SYRTE) leads the work package on atom chip manufacturing and brings expertise in atomic clocks, atom interferometry and PNT-grade inertial sensors; Laboratoire Albert Fert (a CNRS-Thales joint research lab on the Thales Research and Technology site in Palaiseau) hosts the second atom chip production center; FEMTO-ST leads the work package on vapor cells and operates the MIMENTO microfabrication platform, with more than 15 years of experience in chip-scale atomic clocks. Weling tests the 795 nm chip-based components on its quantum memory platform, with the technologies developed in the project intended for integration into Weling's commercial quantum memory product. Safran Electronics & Defense is end user for cold atom inertial sensors, leads atom chip work for ultra-cold atom sources, and hosts the first packaging and tests center for atom chips. Centrale Lille Institut hosts the second production, packaging and test center for microfabricated vapor cells, contributing antirelaxation coating processes and internal electrode integration. ONERA designs and tests innovative vapor cells with internal electrodes for Rydberg-based electromagnetic field sensing, integrating cells fabricated by FEMTO-ST and Centrale Lille Institut into pre-existing Rydberg sensing instruments. Thales contributes design, testing, foundry and quantum provider capabilities for atom chips, and hosts the third packaging and tests center for atom chips.



From Germany

University of Stuttgart (USTUTT), and Fraunhofer Heinrich Hertz Institute (Fraunhofer HHI).

USTUTT contributes strontium-based quantum computing platform development through its QRydDemo demonstrator and contributes low-noise laser system, system control and middleware expertise. Fraunhofer HHI leads work on chip-based laser components at 698 nm and contributes hybrid integration across Indium Phosphide, Thin Film Lithium Niobate (TFLN) and Silicon Nitride (SiN) platforms.

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From Italy

Istituto Nazionale di Ricerca Metrologica (INRiM), SAES Getters S.p.A., Politecnico di Milano (POLIMI) and Consiglio Nazionale delle Ricerche (CNR).

INRiM, the Italian National Metrological Institute, contributes as quantum provider, developing tests of components at all four wavelengths and contributing extremely narrow optical filters as passive components, drawing on its expertise in caesium fountains and laser cooled optical clocks based on ytterbium and strontium. SAES Getters contributes Non Evaporable Getter (NEG) materials and vacuum system optimization for compact integrated atomic systems, supporting both system size scale down and industrial production scale up. POLIMI leads the work package on electronic components and contributes ring resonator design, control algorithms for automated calibration, and CMOS-integrated control electronics for chip-based laser systems across all four wavelengths. CNR, through its National Institute of Optics (INO), contributes as quantum provider, with development of atom-based magnetic, gravitational and inertial sensors, atom interferometer schemes, and atom-based quantum simulators and computers.

From Poland

Uniwersytet Warszawski (UoWW), TopGaN sp. z o.o. and the Institute of High Pressure Physics of the Polish Academy of Sciences (Unipress).

Unipress, with more than 25 years of experience in the growth and processing of gallium nitride emitters, designs the laser sources and amplifiers at 461 nm and contributes wafer-level characterization. TopGaN, a spin-off from Unipress and the second European company to demonstrate violet laser diodes, acts as foundry for III-V components at 461 nm and contributes assembly with hermetic packaging in collaboration with VTT. The University of Warsaw, through its Centre for Quantum Optical Technologies, develops RF and THz sensors based on Rydberg atoms (hot and cold), tests light sources at 795 nm and develops custom electronics for signal processing and locking.

From Portugal

PQI – Portuguese Quantum Institute (PQI).

PQI leads communication and dissemination across the Q-PLANET consortium. PQI also analyses the energetic performance of the chip-based components at unit and application level, building on its prior work investigating and improving the energy efficiency of quantum gates and circuits to inform energy-efficient quantum chip design.

From Spain

Consejo Superior de Investigaciones Científicas (CSIC) and Institut de Ciències Fotòniques (ICFO).

CSIC contributes through the Nanomaterials and Nanotechnology Research Center (CINN), a joint initiative with the University of Oviedo, evaluating technologies that enhance the performance and compactness of neutral atom quantum simulators and computers, and co-designing optical modulators, electronics and FPGAs with industrial partners. ICFO contributes as quantum provider through three groups: the Atomic Quantum Optics group develops quantum sensors using atomic vapors with MEMS cells; the Ultracold Quantum Gases group performs quantum simulations on degenerate gases and Rydberg atom arrays, including the first strontium quantum gas microscopes; and the Quantum Photonics group develops atomic-based quantum memories and quantum network nodes with Rydberg superatoms. ICFO tests 461 nm and 698 nm components on its quantum simulation and computing platforms, and 795 nm components for quantum sensing, quantum memories and quantum network applications.

From Sweden

SLF Svenska Laserfabriken AB.

SLF, originally a spin-out from KTH, produces periodically poled Potassium Titanyl Phosphate (ppKTP) crystals and waveguide devices used for nonlinear frequency conversion in Q-PLANET, with unique know-how in producing some of the largest aperture periodically poled crystals on the market and with the shortest periods.

About Pasqal, project coordinator

Pasqal is a global leader in delivering practical quantum computing at scale utilizing neutral atom technology and dedicated software for industry, science, and governments. Since its founding in 2019, Pasqal has leveraged Nobel Prize winning research to build high-performance quantum systems and cloud-ready software designed to address complex challenges in optimization, simulation, and artificial intelligence.

Headquartered in France, Pasqal employs approximately 300 people and serves over 25 clients and partners, including Aramco, LG Electronics, Crédit Agricole CIB, CMA CGM, OVHcloud, Thales, IBM (Pasqal is part of the IBM Quantum Network), and Sumitomo.

Backed by more than USD 300 million in total private funding from leading international investors, Pasqal is pursuing a listing on Nasdaq in partnership with Bleichroeder Acquisition Corp. II (Nasdaq: BBCQ) and is accelerating the adoption of scalable, high-performance quantum computing worldwide.

In Europe, under the EuroHPC Joint Undertaking procurement process, Pasqal has delivered three quantum processing units to European High-Performance Computing Centers in France (TGCC), Germany (Forschungszentrum Jülich) and Italy (CINECA). Pasqal is the elected European Convenor of CEN/CENELEC JTC22 European standardization WG3 on quantum computing and simulation represented 34 European countries. It is also a member of the French governmental delegation to ISO/IEC JTC3 international standardization Committee on quantum technologies.

About Chips Joint Undertaking

The Chips Joint Undertaking (Chips JU) is a public-private partnership launched by the European Union Council Regulation No 2021/1085 and amended in September 2023 as part of the Chips for Europe Initiative. It aims to strengthen Europe's semiconductor and quantum chip ecosystem. by co-funding pilot lines and research initiatives to bridge the gap between laboratory innovation and industrial production.



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Consortium Partners

