

French Government Backs New Technology for Industrial Quantum Chip Production

Supported by the AID, Alice & Bob and PLASSYS-BESTEK have partnered to fabricate next-generation fault-tolerant quantum chips

PARIS, CA, UNITED STATES, October 23, 2025 /EINPresswire.com/ -- Alice & Bob, a global leader in the race for fault-tolerant quantum computing, together with PLASSYS-BESTEK a specialist in thin film deposition technology, supported by the AID (the French

Government's defense innovation agency), today announced the delivery of a state-of-the-art quantum chip fabrication equipment SQUID-6 UHV as part of the ULTRACAT project.



“

ULTRACAT represents a major step forward for the fabrication of more reliable and scalable quantum chips... to position France as a leader in fault-tolerant quantum computing.”

Franck Correia, Technical Expert of Quantum Technologies at DGA

Alice & Bob is currently constructing a new \$50 million advanced quantum lab in Paris equipped with a nanofabrication cleanroom for the prototyping of cat-qubit chips. The new tool has been purchased and delivered for installation in the lab upon completion of the cleanroom expected in March 2026.

“We must invest in advanced chip manufacturing to scale our quantum computers and accelerate the design iteration cycle of the company,” said Antoine Gras, VP of Quantum Hardware and Infrastructure at Alice & Bob. “This device is truly an engineering marvel, enabling the reliable, automatically calibrated fabrication of cat-qubit

processors.”

The SQUID-6 UHV is a new, fully automated, ultra-high vacuum (UHV) deposition system from PLASSYS-BESTEK. It stands as the inaugural model of a new series of advanced tools developed by the company to enable quantum chip nanofabrication.

The ULTRACAT project boosts the technological maturity of Josephson junction fabrication using UHV cluster deposition — a key step toward a fault-tolerant universal quantum processor and Europe's informational sovereignty.

This new generation tool employs a modular cluster architecture working around a central UHV distribution chamber. This design allows for the serial processing of multiple wafers up to 8 inches in diameter, by orchestrating various manufacturing processes within its multiple, independent process chambers.

Thanks to its modular design and UHV operation, the SQUID-6 UHV minimizes chip exposure to cross-contamination from various fabrication processes. It thus reduces material imperfections and guarantees high-quality Quantum Processing Units (QPUs), representing a clear response to meet the growing demand for quantum chips material processing.



“SQUID-6 UHV marks the delivery of our first cluster ultra-high vacuum deposition platform, a significant milestone for industrial quantum production,” said Luc Pattard, general manager at PLASSYS-BESTEK. “This defense-backed project demonstrates how the advanced capabilities of our fabrication equipment are making a concrete difference in the emerging quantum supply chain today.”

Quantum processors manufacturing processes are not as mature as traditional semiconductors ones. The technologies for handling QPU materials are still being refined, and quantum processors face challenging quality requirements. The technological advances brought by ULTRACAT are essential for developing fault-tolerant quantum computers in France and across Europe. This is why the French defense agency's innovation AID, led the funding of the project, which began in 2022 and will conclude in 2027.

“ULTRACAT represents a major step forward for the fabrication of more reliable and scalable quantum chips,” said Franck Correia, Technical Expert of Quantum Technologies at the General

Directorate for Armament (France's defense procurement agency). "This crucial advance toward industrial production supports our continued efforts to position France as a leader in fault-tolerant quantum computing."

As Alice & Bob continues to build out its Paris-based lab, its partnership with PLASSYS-BESTEK and the sustained support from France, will be key to achieving the next milestone: fabricating and testing quantum chips with a growing number of cat qubits to create a high-fidelity logical qubit.

About PLASSYS-BESTEK

PLASSYS-BESTEK, founded in 1987, is a French company providing high-performance vacuum and ultra-high

vacuum solutions for innovative thin film material deposition. PLASSYS-BESTEK supplies custom-designed systems, for prestigious research laboratories, universities, and industrial manufacturing plants. PLASSYS-BESTEK is a recognized leader in equipment for quantum technologies, having designed top-level deposition tools since the early 2000s that are now central to manufacturing superconducting qubits and other quantum devices. PLASSYS's core technologies include vacuum evaporation (thermal/e-beam), sputtering, and ion etching, along with production systems for diamond growth via PECVD. PLASSYS equipment is vital for applications in semiconductor technology, superconductors, nano-electronics, optics, photonics, and spintronics. Follow PLASSYS-BESTEK on LinkedIn, visit their website www.plassys.com to learn more.

About AID

The [Defense Innovation Agency \(AID\)](#) was established on 1 September 2018. Based in Balard (Paris 15th arrondissement), the Agency operates as a national-level organization within the French Ministry of the Armed Forces.

The AID unites and coordinates the Ministry's innovation initiatives—ensuring coherence and strategic alignment across all efforts. It supports four main categories of innovation projects: defense technology projects, innovation acceleration projects, participatory innovation projects, and research projects.

While pursuing long-term technological innovation, the Agency also acts as a catalyst for emerging and opportunistic innovations, serving the needs of all end users across diverse domains, including operations, equipment, support, logistics, and administration.



About DGA

With its large engineering and test expertise, the General Directorate for Armament (DGA) has the responsibility to conceive and purchase weapons systems covering the entire life of the programs and to prepare the future of defense systems with the aim of guaranteeing France's independence and strategic autonomy.

DGA is leading the PROQCIMA project as part of the France's national quantum strategy. The aim of PROQCIMA is to explore, develop, industrialize and deliver first quantum computing resources with five start-ups, including Alice & Bob. PROQCIMA is a competition organized to gradually select the most promising technologies.

About Alice & Bob

Alice & Bob is a quantum computing company based in Paris and Boston whose goal is to create the first universal, fault-tolerant quantum computer. Founded in 2020, Alice & Bob has raised €130 million in funding, hired over 150 employees and demonstrated experimental results surpassing those of technology giants such as Google or IBM.

Advised by Nobel Prize winning researchers, Alice & Bob specializes in cat qubits, a technology developed by the company's founders and later adopted by Amazon. Demonstrating the power of its cat architecture, Alice & Bob recently showed that it could reduce the hardware requirements for building a useful large-scale quantum computer by up to 200 times compared with competing approaches. Follow Alice & Bob on LinkedIn, X or YouTube, visit their website www.alice-bob.com, or join [The Cat Tree](#) on Slack to learn more.

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