



**KALRAY LAUNCHES ES3CAP AS LEAD PARTNER:
A 22.2 M€ BUDGET AMBITIOUS INDUSTRIAL PROJECT FOR THE
DEVELOPMENT OF THE FUTURE COMPUTING PLATFORM
FOR INTELLIGENT SYSTEMS**



- *A collaborative strategic innovation project, bringing together:*
 - *Leading automotive, aerospace and defense manufacturers, including Renault-Nissan-Mitsubishi, MBDA and Safran;*
 - *Innovative and high-growth French companies;*
 - *Prestigious research laboratories, including CEA and Inria.*
- *Financing of €11.7m obtained under the Bpifrance Invest for the Future Program (Programme d'Investissements d'Avenir — PIA).*

Grenoble, February 6, 2019 - Kalray (Euronext Growth Paris: ALKAL), a pioneer in processors for new intelligent systems, today announces the launch of the **collaborative ES3CAP program**¹, combining 11 industrial and academic partners, for which Kalray is the lead partner.

The **ES3CAP** program, with a total budget of **€22.2m over three years**, will receive **€11.7 million**² in financing under the Invest for the Future Program³, managed by Bpifrance, to contribute to finance the research activities.

The objective of the ES3CAP project is to build a hardware and software platform for manufacturers developing critical applications that require high-performance computing capacity, in the fields of aeronautics (aviation, flying taxis, drones), defense and self-driving vehicles. It comprises an entire ecosystem of partners working on complementary aspects of operating systems and real-time, critical software tools, computer vision, data fusion and artificial intelligence, all on a reliable and secure hardware platform, Kalray's MPPA® ("Massively Parallel Processor Array").

The artificial intelligence boom is on the verge of revolutionizing many markets. The self-driving cars, aircraft engines and robots of the future will all require access to new Cyber Physical Systems (CPS) in direct interaction with the physical world and with the capacity to process, via increasingly sophisticated algorithms, an increasing amount of data and functions. These processing operations must be carried out

¹ "Embedded Smart Safe Secure Computing Autonomous Platform"

² Contribution to the project's financing in the form of mixed subsidies and recoverable advances from the State (PIA).

³ The Invest for the Future program, managed by Bpifrance, was set up by the French government in order to help finance innovative and promising investments in France, with a principle of co-financing for each project.





while ensuring compliance with the strict functional safety and security requirements shared across these different industries.

Therefore, these changing requirements have therefore forced manufacturers to adopt new generations of processors called "multi" or even "many" cores, the only processors capable of meeting the twofold need for performance and integration of a large number of functions on a single component capable of providing the required computing capacity and operational independence. ES3CAP relies on Kalray's MPPA® manycore processors, which meet all of these requirements perfectly.

The industrial partners for this project include **Renault-Nissan-Mitsubishi** and **EasyMile** for automotive, and **Safran Electronics & Defense** and **MBDA** for avionics and defense. Technological partners include **ANSYS/Esterel Technologies** for the certified software development tool portion and the generation of the multi-core code, **Krono-Safe** for its ASTERIOS® software solution consisting of a suite of integrated software tools and a multi-core real-time kernel with a high level of operational reliability, **Prove & Run** for the security architecture, OS and high security services, **Kalray** for its intelligent MPPA® processors and the associated software platform, **PROPHESSEE** for the patented high-performance neuromorphic vision comprising sensors and artificial intelligence. The expert partner tasked with ensuring the operational reliability of the physical platform is **IROC Technologies**. The key academic partners are **CEA** (French Alternative Energies and Atomic Energy Commission) and **Inria** (French research institute for digital sciences).

Éric Baissus, CEO of Kalray, commented as follows: *“Intelligent systems are going to play an increasingly important role in our lives, whether in the self-driving cars or aircraft of the future. France has a very dynamic and cutting-edge ecosystem in this area. We're delighted to have been able to surround ourselves and the ES3CAP project with renowned manufacturers, research laboratories, fast-growing SMEs and French start-ups, and to have obtained the support of the French government to strengthen a national sector that is both commercially attractive and strategic for our industry.”*

Rémi Bastien, VP Automotive Prospective at Groupe Renault added: *“This collaborative project with Kalray, bringing together expertise from multiple disciplines and sectors, is a great opportunity for Renault-Nissan-Mitsubishi. We expect that it will lead to a variety of applications in the development of future vehicles' electronic architecture - from the more complex, related to autonomous driving, to simpler ones.”*

Pejvan Beigui, CTO of EasyMile: *“We are looking forward to collaborating with the institutions, large enterprises and deep-tech startups of the ES3CAP consortium. Kalray's platform, built on top of their innovative many-core MPPA processor, is ticking all the boxes when it comes to EasyMile's requirements for high performance, high reliability and ultra-safe systems. I am very excited at the prospect of running EasyMile's leading autonomous navigation software on the MPPA processor and leveraging the tremendous value this platform will bring us.”*

On behalf of Safran, major European player in aeronautics and defense, Joël Berkoukchi, Deputy General Manager, Director of the Avionics Division declared: *“The ES3CAP project gives Safran the opportunity to broaden the environment of Kalray's new generation of high-compute and safety-critical MPPA processor, and to ease its integration into innovative avionics architectures to bring autonomous aircraft to life.”*





Harold Van den Bossche, Responsible for industrial Policy and Supply Chain at MBDA, a major European player in the defense sector, made the following comments: *"MBDA is very happy to be taking part in the development of the "multi-core" processor ecosystem on the Kalray platform. The applications for our future on-board systems are highly promising, and thus contribute to the strength of our armed forces. The ES3CAP consortium is a prime example of cooperation between major groups, institutions and SMEs in supporting technological innovation in France and guaranteeing the sovereignty of our technological and industrial capacities for both civil society and defense."*

Sophie Rémont, Head of Expertise at Bpifrance: *"Kalray has successfully shared its strategic vision and has formed high-quality industrial and academic partnerships in order to achieve its goals. We're delighted to be joining Kalray in this new innovative project, for which it is the lead manager."*

ABOUT KALRAY

Kalray (Euronext Growth Paris — FR0010722819 — ALKAL) is the pioneer in processors for new intelligent systems. As a real technological breakthrough, "intelligent" processors have the capability to analyze on the fly, and in an intelligent manner, a very large amount of information, and to make decisions and interact in real time with the outside world. These intelligent processors will be deployed extensively in fast-growing sectors, such as new-generation networks (intelligent data centers) and autonomous vehicles, as well as healthcare equipment, drones, and robots. Kalray's offering encompasses both processors and complete solutions (electronic boards and software). Created in 2008 as a spin-off of CEA ("Commissariat à l'énergie atomique et aux énergies alternatives", the French Alternative Energies and Atomic Energy Commission), Kalray serves customers such as server manufacturers, intelligent system integrators, and consumer product manufacturers, including car makers. For more information, visit www.kalrayinc.com.

ABOUT THE "INVEST FOR THE FUTURE" PROGRAM

With some 57 billion euros, the Invest for the Future program, coordinated by the CGI, was set up by the French government in order to help finance innovative and promising investments in France. Six national priorities were therefore identified, in order to enable France to increase its growth and employment potential:

- higher education, research and training,
- the promotion of research and its application in the economic world,
- sustainable development,
- industry and SMEs,
- the digital economy,
- healthcare and biotechnologies.

The third part of the program, PIA3, is part of the French investment plan (Grand Plan d'Investissement - GPI) presented by the Prime Minister on September 25, 2017.

To learn more about Invest for the Future: www.gouvernement.fr/secretariat-general-pour-l-investissement-sgpi.

Twitter: @SGPI_avenir



LE GRAND PLAN
D'INVESTISSEMENT

ABOUT BPIFRANCE

Bpifrance is the French national investment bank: it finances businesses – at every stage of their development – through loans, guarantees, equity investments and export insurances. Bpifrance also provides extrafinancial services (training, consultancy..) to help entrepreneurs meet their challenges (innovation, export...).

For more information, please visit: www.bpifrance.fr and presse.bpifrance.fr - Follow us on Twitter: @Bpifrance - @BpifrancePresse



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