

Extra-Low Power, Secure and Reliable Flash-Memory Controller for Automotive, Industry 4.0 and Internet of Things

A project within the EUREKA PENTA program



Paris, 1 September 2020 - Within the European PENTA project, XSR-FMC, a new flash memory controller platform will be developed that will improve flash memory storage systems' security, safety and reliability. Furthermore, these controllers will significantly reduce energy consumption, contributing to greater sustainability.

Flash memory is part of everyday life. Widely used, it stores data in music players, memory sticks, and SSD in consumer applications. Currently, only flash controllers specifically developed for niche applications can offer the features targeted by the XSR-FMC project. However, with flash memories increasingly used in automotive electronics, digitally controlled machines in factories (Industry 4.0) and Industrial IoT, demand is growing for higher quality controllers in many applications and markets.¹



Photo by courtesy of Hyperstone

In many consumer devices, the 'controller' simply manages how data is stored and retrieved, with few capabilities to deal with errors or data protection. But in a car's electronic network or an industrial machine, failures could lead to breakdowns or even endanger human life. When devices are connected to the internet, unprotected storage systems are at risk of attacks – from intrusions over data privacy to disruption of vital functions such as a car's electronic controls.

The XSR-FMC consortium includes design and manufacturing specialists in flash controllers, semiconductor design and security to address these complex requirements. The initial design will offer high reliability for an extended temperature range, long life-time, ultra-low power consumption, certifiable security, error correction and robustness to sudden power failures.

This European collaboration will expand Europe's commercial position in technology required for new generation of flash memories and strengthen its capabilities in secure data infrastructure and storage.

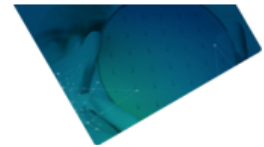
¹ According to LP Information, automotive, IIoT and industrial markets had a CAGR of 10.2% from 2015 to 2020, and the trend is predicted to continue. According to HIS Markit, semiconductor revenue in automotive is forecast at over US\$ 40 billion by 2022. Statista predicts global enterprise IIoT spending within automotive will be US\$ 303.3 billion in 2020.

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About the PENTA program

PENTA is a EUREKA cluster whose purpose is to catalyze research, development and innovation in areas of micro and nanoelectronics enabled systems and applications - where there is shared national and industrial interest. Based on the Electronic Components & Systems (ECS) Strategic Research Agenda (SRA) key areas and essential capabilities, PENTA program contributes to the development of electronic solutions with the opportunity for rapid competitive exploitation and a strong impact on European societal challenges. The PENTA project team is supporting SMEs, large corporations, research organizations and universities by facilitating access to funding, fostering collaborative work and creating consortia.

PENTA is operated by AENEAS.

More on PENTA: <http://www.penta-eureka.eu>

More on AENEAS: <https://aeneas-office.org>

About XSR-FMC

XSR-FMC is an RD&I project consortium involving 8 partners from 3 countries, France, Germany, and Portugal. The project partners are: Hyperstone (project coordinator), Extoll, Fraunhofer Institute for Reliability and Micro-integration (IZM), GLOBALFOUNDRIES Dresden Module One LLC & Co. KG, HTWG Konstanz - University of Applied Sciences, Racyics GmbH, SiliconGate LDA, and TIEMPO SAS.

More on XSR-FMC: <https://www.penta-eureka.eu/downloads/ProjectProfiles/penta-project-profile-xsr-fmc.pdf>