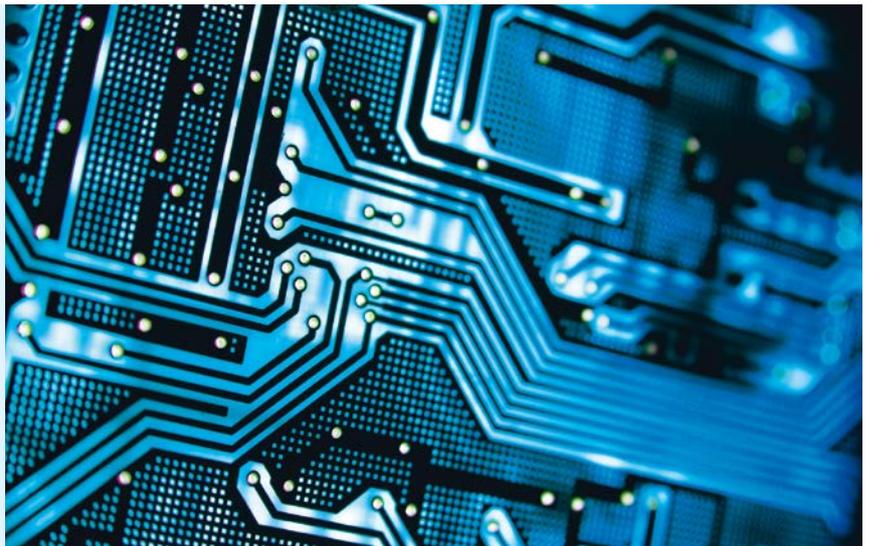


## Electronic Components & Systems: boosting Europe's electronics design and manufacturing capabilities

- Underpinning next generation digital technologies;
- Improving energy efficiency of electronic components and systems;
- Supporting European leadership in design and production;
- Making electronic products cheaper, smarter and smaller;
- Creating growth and jobs in electronics and related services.



### What is the challenge?

Electronic components and systems are essential for Europe's industrial landscape. They underpin product and productivity innovation across the whole of the economy and play a critical role in addressing societal challenges. But Europe's industries must cope with fierce global competition, high research costs and the very fast pace of technology development. The answer is to cooperate, pool resources and build on expertise at the European level to bring research faster to market and stimulate demand for European-produced electronic components and systems.

### What is the Electronic Components and Systems for European Leadership (ECSEL) initiative?

The new Electronic Components and Systems for European Leadership (ECSEL) Joint Technology Initiative (JTI) is a merger of the ARTEMIS embedded systems JTI, the ENIAC nanoelectronics JTI and the European Technology Platform (ETP) on smart systems integration, which were set up in 2008. Electronic systems and components, such as semiconductors and computer chips, are essential to all digital products and services. Cars, planes, trains, medical and health equipment, home appliances, energy networks and security systems will all benefit from the advanced

European capability and capacity to design and manufacture state of the art electronic components and systems.

The new ECSEL JTI will be fully operational from June 2014 to December 2024 as part of the EU's research funding programme Horizon 2020. It brings together large companies, world-class European research and technology organisations linked with higher education research labs, and SMEs providing technology and services. In particular three private industrial associations representing the actors from the areas of micro-/nanoelectronics, smart integrated systems and embedded/cyber-physical systems will be involved.

### What results and benefits do we expect?

ECSEL will secure for Europe the supply of key technologies, which underpin innovation in all sectors of the economy, and ensure the best use of these technologies to spur economic growth. It will support the implementation of other EU policies, particularly in the area of industrial competitiveness.

It will help overcome obstacles to effective research and innovation in this area and attract private investment and facilitate the participation for actors involved in research.

And it will create a mechanism for industry to set a long-term strategic research and innovation agenda, create the necessary critical mass, leverage private investment, facilitate knowledge sharing, reduce risks, lower costs and reduce time to market.

### How much will it cost?

The estimated budget for operational expenditure of the ECSEL JTI is expected to reach close to €5 billion. The EU will invest some €1.18 billion in this public-private partnership through its research and innovation programme Horizon 2020. At least a similar amount will come from participating Member States. Partners will contribute at least €2.34 billion.

### How will it be managed?

ECSEL will be managed by a dedicated Joint Undertaking whose Governing Board, comprising private members (ARTEMISIA, AENEAS and EPoSS), Member States and Associated Countries and the Commission representing the European Union, will take strategic decisions. A Public Authorities Board, comprising representatives of the participating Member States and Associated Countries and the European Commission, will take funding decisions. Open calls for proposals will be used to implement the work plans of the Joint Undertaking with co-funding by the Union and the Participating States based on an independent evaluation and synergies with national priorities.

### What has the current JTI achieved so far?

The current ENIAC and ARTEMIS JTIs provided a major opportunity to cooperate across Europe, create critical mass and leverage investments. This capability was convincingly demonstrated in 2012 by the ENIAC JU's success in jump-starting the implementation of the Key Enabling Technologies recommendations in nanoelectronics with five manufacturing pilot lines worth €730 million, and by the ARTEMIS JU's first launch of two large-scale innovation pilot projects worth €150 million. In the period 2008-2013, the two JTIs altogether supported more than 100 projects with a total financing of €4 billion, of which €650 million by the European Union and €850 million by Participating States. They involved over 1000 organisations, of which

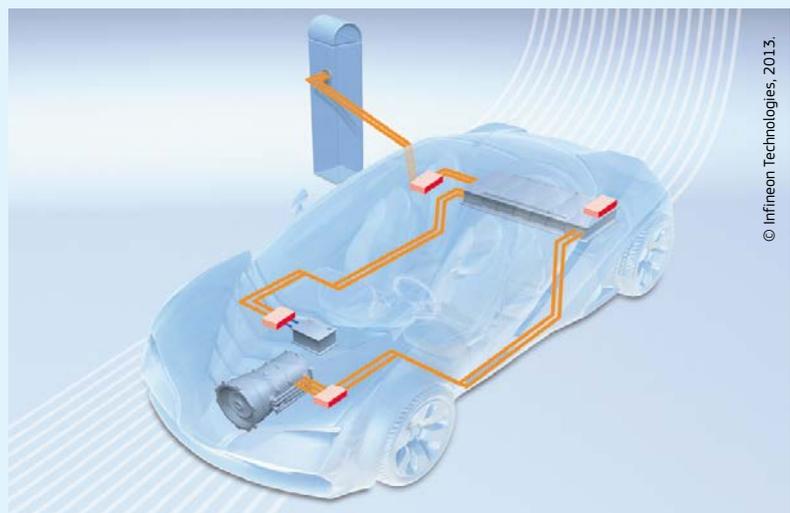
## Efficient and green production of electronics

The largest project in the ARTEMIS portfolio is CESAR - Cost-Efficient methods and processes for SAFETY Relevant embedded systems - which has made a significant impact on the European industry of embedded systems, especially with regard to safety aspects. It focuses on the key transportation domains: automotive, aerospace and rail. It developed ultra-reliable embedded systems in order to meet societal demands for increased mobility and ensure safety in a highly competitive global market. For ENIAC, a clear success is the E3Car, which overcame the main challenges regarding the electrical vehicle using advanced semiconductor components. An increase in energy efficiency of 35% has been achieved in certain components.

### More information:

CESAR: [www.eejournal.com/archives/articles/20121205-artemis/](http://www.eejournal.com/archives/articles/20121205-artemis/)

E3Car: [www.e3car.eu](http://www.e3car.eu)



E3Car project has increased efficiency of electric vehicles.

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40% SMEs, 30% large enterprises and 30% research and higher education organisations.

For ENIAC, a clear success is the launch of 14 manufacturing pilot lines over the period 2012-2013, representing some €1.8 billion investment. The European funding of nearly €270 million, complemented by €230 million national funding, leveraged a €1.3 billion industrial contribution.

### Useful links

ECSEL JU: [www.ecsel-ju.eu](http://www.ecsel-ju.eu)

Electronics: [www.eniac.eu](http://www.eniac.eu), [www.aeneas-office.eu](http://www.aeneas-office.eu)

Embedded systems: [www.artemis-ju.eu](http://www.artemis-ju.eu), [www.artemis-ia.eu](http://www.artemis-ia.eu)

Smart integrated systems:  
[www.smart-systems-integration.org](http://www.smart-systems-integration.org)