ALMARVI

Algorithms, design methods, and Many-core execution platform for low-power massive data-Rate Video and Image processing

**PROJECT description**
Cross-domain many-core platform solution, system software stack, tool chain and adaptive algorithms for massive data-rate low-power image/video processing, high adaptability and abstracting from variations.

**RELEVANCE CALL 2013 objectives**
- Modularity, adaptive architecture, cross-domain system software stack and execution platform with well-developed tool chains.
- Run-time reconfigurability.
- Seamless scalability and integration of hardware and software components and cross-domain component reuse.
- Run-time adaptive resource and power management techniques.
- Incremental development & test.

**MARKET innovation**
Advanced image and video processing systems are a crucial and resource-consuming part of embedded applications in many sectors. Project results facilitate the transition from a vertical to a horizontal market, leading to low-cost solutions for markets in different industrial domains. The demonstrators generate marketable applications and products in their relevant domains: healthcare, surveillance/security & mobile. Cross-domain applicability will reduce fragmentation, thus increasing the market share of the European supplier industry.

**TECHNICAL innovation**
Leverage the properties of image/video content, while jointly adapting algorithms and hardware, in order to achieve much higher potential to save power and to enable massive data-rate processing.
- At the Application layer, the goal is to adapt algorithms towards the architectures.
- At the System Software Stack layer, the adaptive run-time system allocates resources to different applications with simultaneous, energy-efficient execution.
- At the Hardware layer, the ALMARVI’s many-core execution platform provides the computing capabilities to diverse image/video processing applications.

**Relevant topics:**
- Automatic extraction of image/video content properties, deriving resource/power requirements.
- Negotiating between algorithms and hardware.
- Identifying and exposing the knobs at algorithmic level.

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**START**
1 April 2014
**DURATION**
36 months
**TOTAL INVESTMENT**
€16.68 m

**PARTICIPATING ORGANISATIONS**
16
**NUMBER OF COUNTRIES**
4

- **CZECH REPUBLIC**
- **THE NETHERLANDS**
- **FINLAND**
- **TURKEY**