

## BE READY FOR MANY-CORE ARCHITECTURE INTEGRATION

20-year experience Integrated circuit design **Embedded computing Real-time systems** 

#### **CEA Tech Expertise**

Industrial partnerships in **Avionics and Automotive** 

**Know-How** Multi-/ Many-core design exploration **Cyber-security** 

# Many-Core Architecture Integration Experiments in a Representative Avionics Environment

### **FROM** Two applications running separately

**Engine Control (EC)** Hard real time constraints **DAL A** 

**DGEN Control Application** 

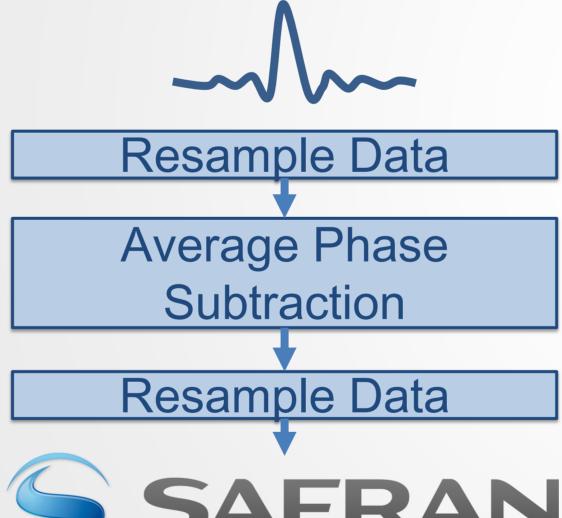


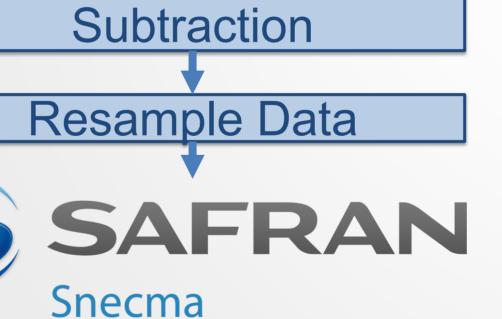




Health Monitoring (HM) High Performance constraints **DALE** 

Signal Processing Application





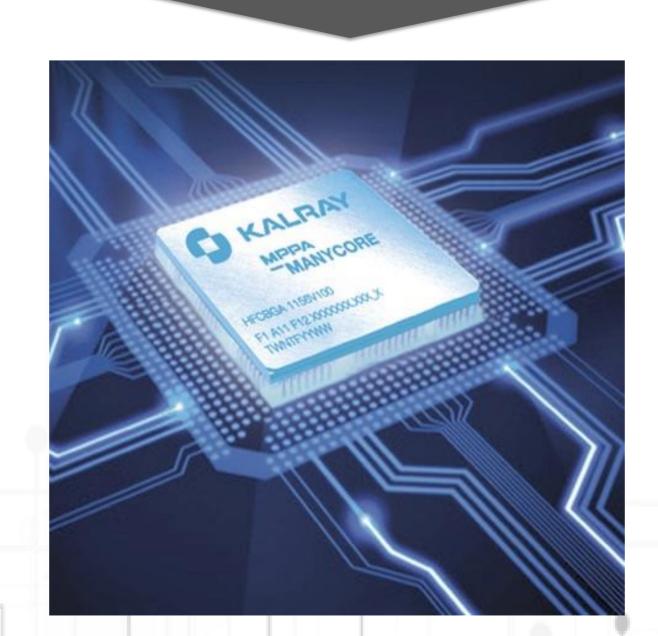


- Aeronautical Experience
- **Certification Process**
- **Engine Expertise**

TO One Kalray MPPA® processor

## Challenges

- Mixed-Criticality on a Many-Core
- Significant performance Increase
  - In Safe and Secure way
    - Consume less Energy



#### Results

- Predictability and non-interference in a cluster under specific conditions
- First level of partitioning in a NoC
- HM performance speedup up to 35 times faster than single CPU execution

CEA Tech, Your Partner for Many-Core Integration...



