

BE READY FOR MANY-CORE ARCHITECTURE INTEGRATION

CEA Tech Expertise

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

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



PRICE INDUCTION
 Engine your dreams

Health Monitoring (HM)
High Performance constraints
DAL E

Signal Processing Application



Resample Data

Average Phase
 Subtraction

Resample Data

SAFRAN
 Snecma

SAFRAN
 AEROSPACE · DEFENCE · SECURITY

- **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...