



CENTRE NATIONAL D'ÉTUDES SPATIALES



CNES contribution to ECI

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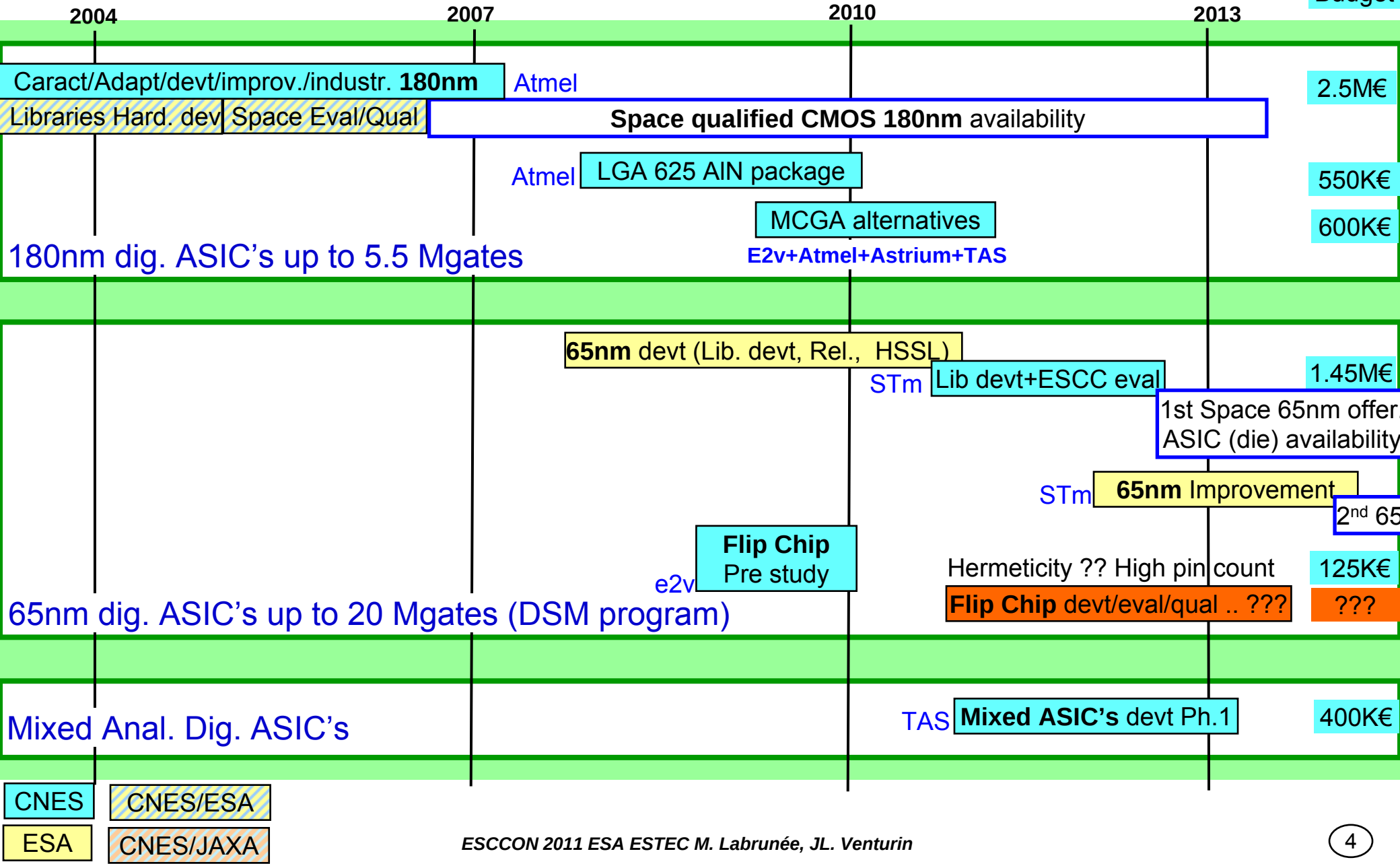


Summary

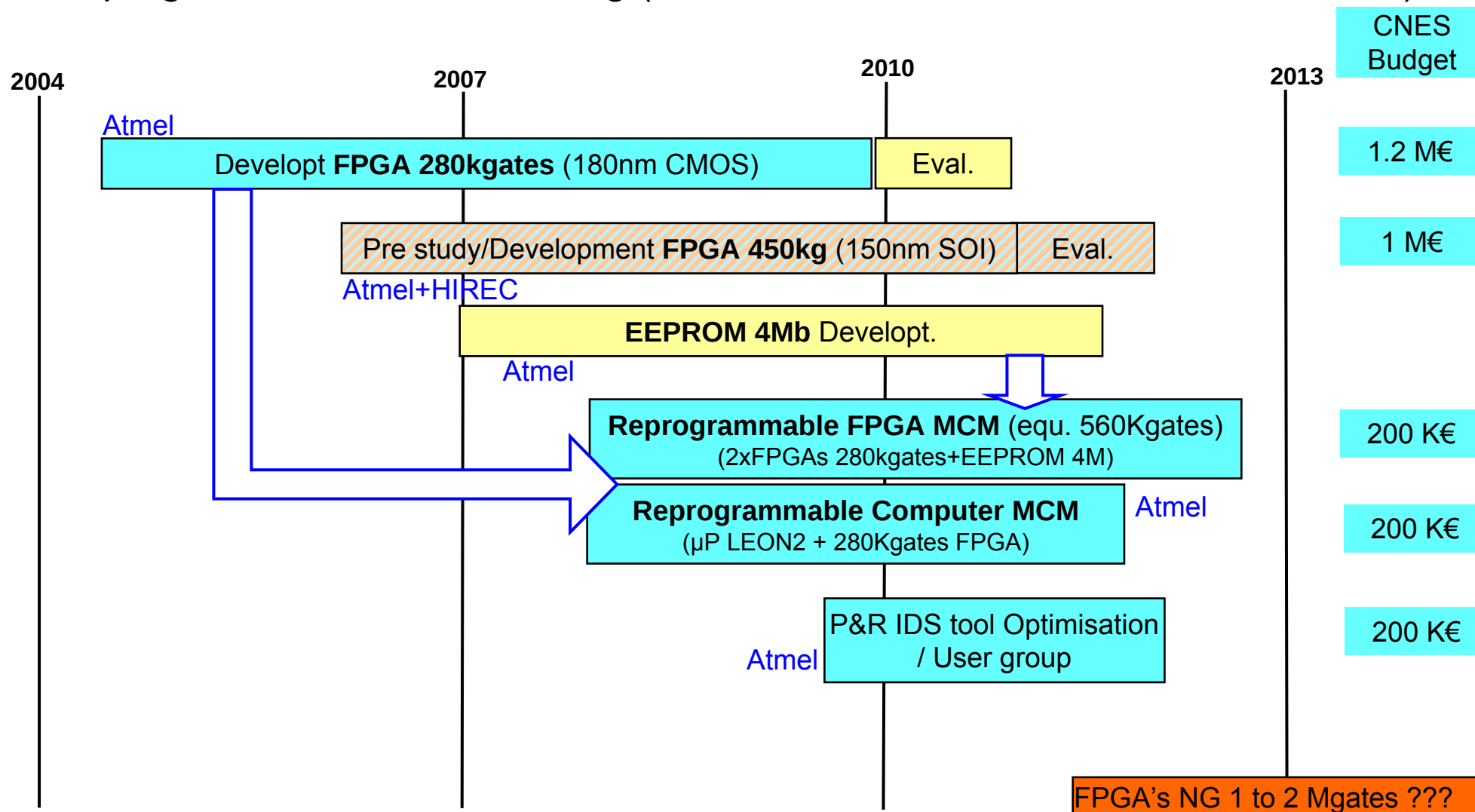
- CNES R-CS Introduction
(In french: Composants Stratégiques)
- CNES contribution to the ECI since 2004

- Support the competitiveness of European Space industry
- Program harmonized through the ESCC/CTB and coordinated with ESA
- Collaboration with JAXA
- Dedicated to “generic” components
- Develop a reliable components supply chain
(The manufacturer takes the complete responsibility from the development to the final delivered products)
and make available competitive components for all the projects
- Reduce the gap of performances between European and non European space components and the dependence of Europe on the following families :
 - Microprocessors, Digital Signal Processors, Memories, ASIC's (< 0.18 microns), linear IC, FPGA, A/D & D/A converters, Power Trans, RF Power transistors and MMIC's, passives components (relays, fuses, ...), ...
- Budgets : Approx. 2M€ per year
 - Annual commitment
 - CNES funding participation target : 50 %

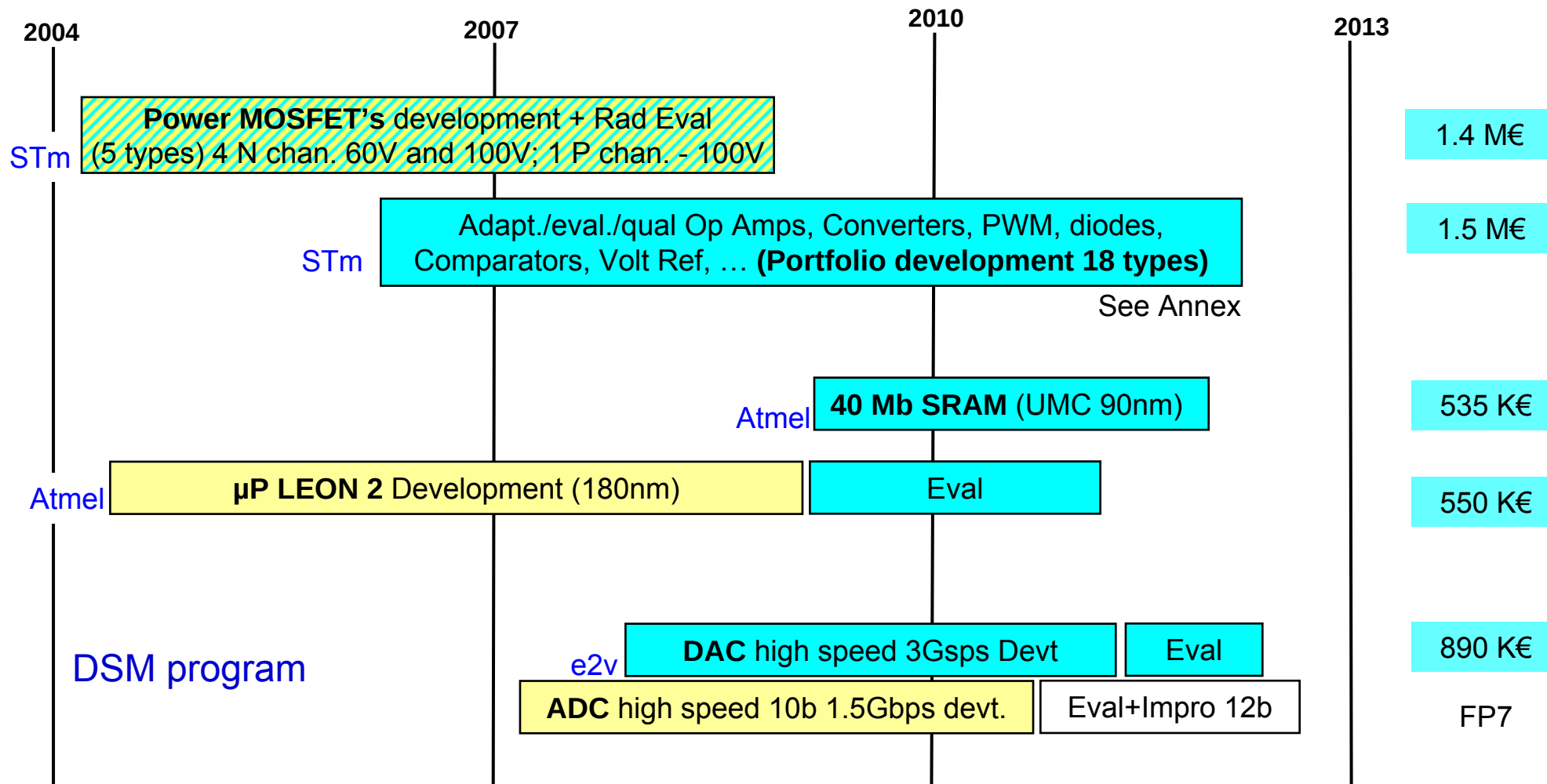
ASIC's offering (incl. packages)



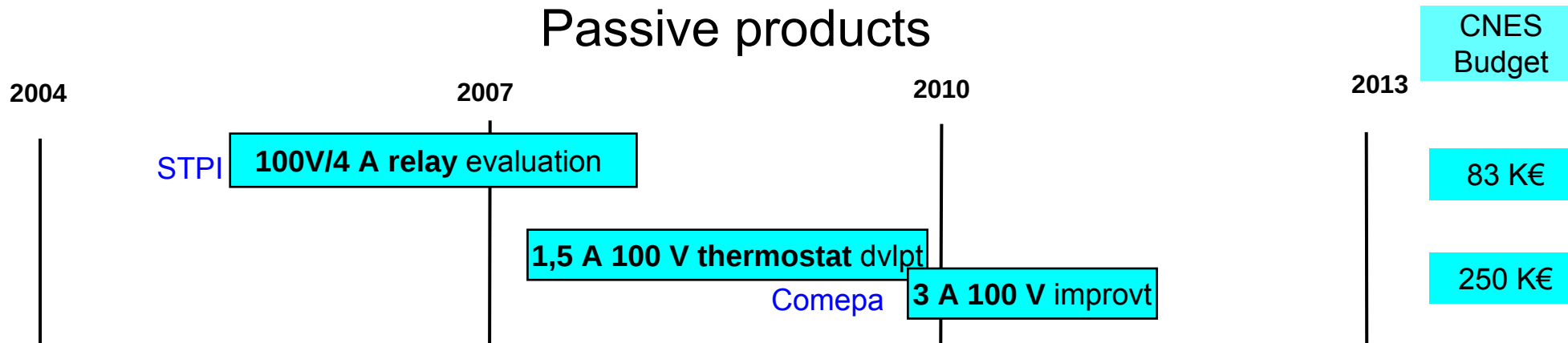
Reprogrammable FPGA offering (stand alone, MCM's, Place and Route tool)



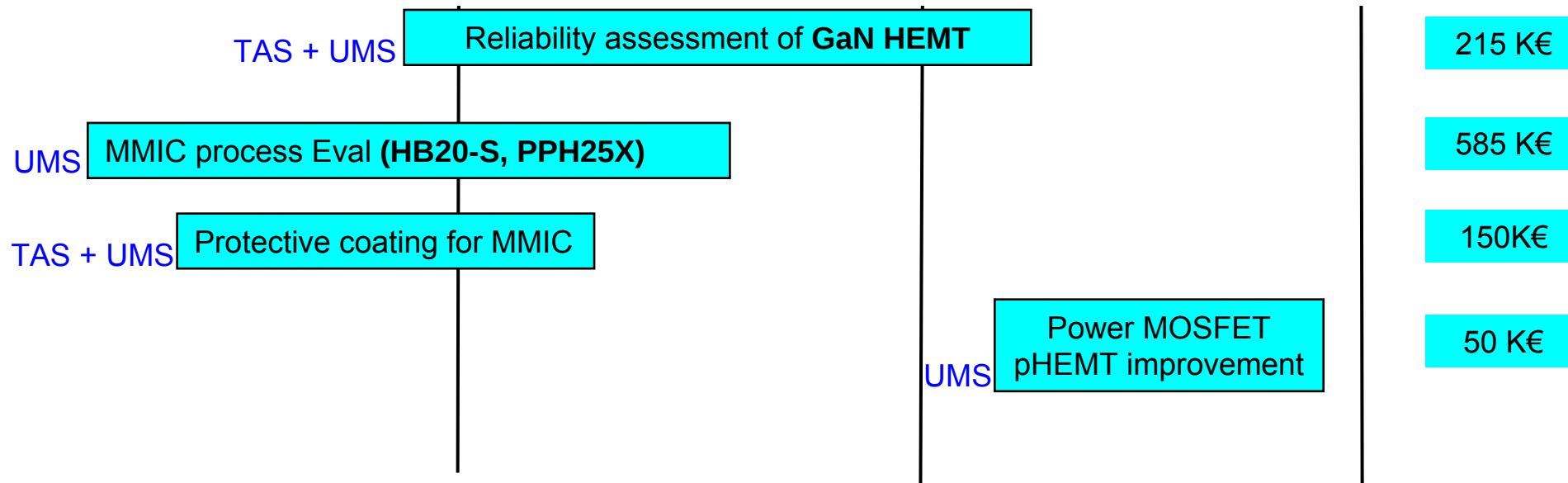
Standards products



Passive products



RF Processes and components



Conclusions

- CNES contribution to ECI for 6 years up to now,
- Many activities in different technological domains
- Good collaboration/coordination :
 - within the CTB and between CNES and ESA
 - with JAXA (FPGA 450K gates on 150nm OKI SOI CMOS process)
- A step forward to make available the future components necessary to improve the competitiveness of the European space industry in the international market.
- Remark : Additional CNES R&T budget committed to complete activities mainly in the passive and RF components

A composite image of Earth from space, where the curvature of the planet and the bright blue atmosphere form a shape resembling a smiley face. The "eyes" are two faint, circular, hazy patches in the dark blue of space. The "mouth" is the bright blue arc of the atmosphere. A bright sun or star is visible in the lower-left, creating a lens flare effect. Several small, distant stars are scattered in the background.

Thank You

- **RHF801 Comparator development**
 - Response time of 4ns, Low consumption: 1.8mA, Single supply: 2.5V to 5V
 - HF7CMOS 0.25μm technology from Crolles
- **UC2843 and UC2845 PWMs ESCC evaluation (ST) End : Q3/2010**
- **RHF100 Voltage reference development**
 - 1.25V, 30ppm/°C, +/-0.5%,
 - HF7CMOS 0.25μm technology from Crolles
- **RHF200 Differential amplifier development**
 - Slew rate : 740V/μs, Input noise : 2.8nV/√Hz, Output « Enable » Function, 20mA max.
 - BiCMOS 0.25μm technology Crolles
- **LDO regulator development SET free**
 - HF2CMOS 2 from Singapore
- **Development and ESCC qualification of diodes family (low and medium power) in LCC2 package**
 - 1N5806, 1N5811, 1N5819, 1N5822, 1N6640, 1N6642
- **A to D high precision converters Evaluation**
 - RHF1401 -14bits, 20Msps
 - RHF1201 – 12bits, 50Msps
- **Evaluation VCXH Logic IC Family (Low voltage BUS drivers)**
- **Op amps Evaluation**
 - RHF43 – Precision OP Amp
 - RHF310 - 400μA High-Speed Op Amp
 - RHF330 - 1.1 GHz Low-Noise Op Amp
- **RHF711 Op Amp development**
 - Single, Rail to rail input, output stable with G=1, Supply from 3 to 12V, Low consumption
 - DIB-12 SOI technology from AMK