

axessvision

part of The Surgical Company

CRESITT – 22 Juin 2021

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Dir.R&D





Introduction

Crée
en 1993

Siège social
aux Pays-Bas

8 sociétés

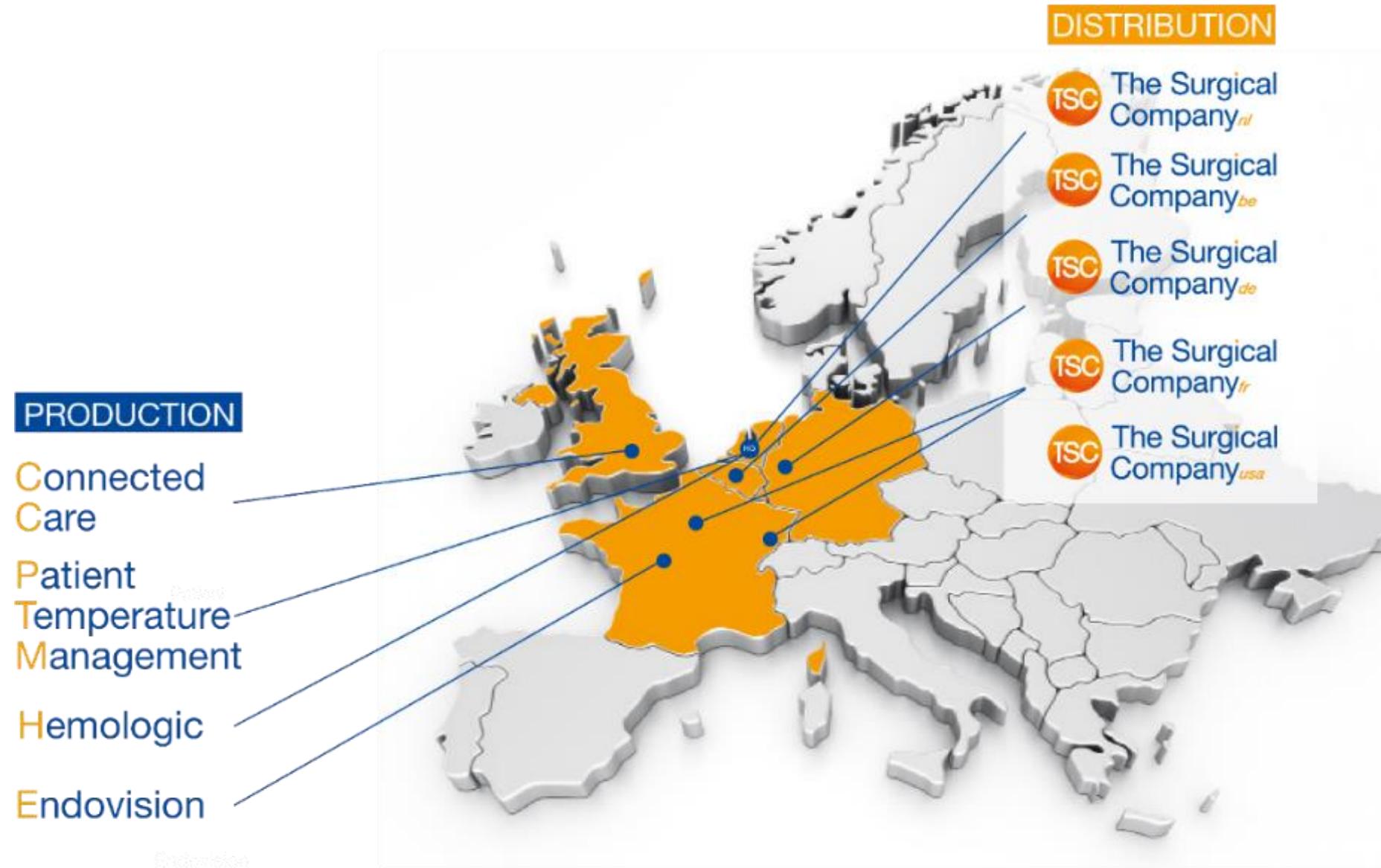
Groupe européen présent en
**France, Allemagne, Pays-Bas, Royaume-Uni,
Belgique et Luxembourg**



Développer, fabriquer et distribuer
des produits médicaux spécialisés et
innovants

400 employés

Specialty medical equipment & service company

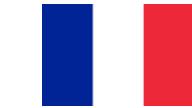


Specialty medical equipment & service company

► *Together, to improve patient outcome with innovative solutions*



Distribution IN EUROPE



- Anesthesia ICU
- Diagnostics
- Interventional Specialties
- Medical
- Neonatal care
- Urgences & Reanimation



- Infection Prevention
- Interventional Care
- Sterilization Equipment
- Surgery



- Anesthesia ICU & OR
- Central Sterilization
- Neonatal
- Surgery / Urology



- Anesthesia ICU & OR
- Central Sterilization
- Neonatal
- Surgery / Urology

Hemologic



- Solutions that offer non-invasive, continuous measurement of the left ventricular volume time curve to assess cardio/hemodynamics



Manufacturing

Connected Care



- Sensium®, a discreet, wearable, Wireless Monitoring System detecting patient deterioration as soon as it is apparent, facilitating the right care at the right time



Patient Temperature Management

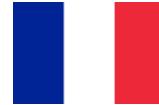


- Solutions for patient warming focused on maintaining patients at a constant healthy and comfortable body temperature throughout the perioperative pathway

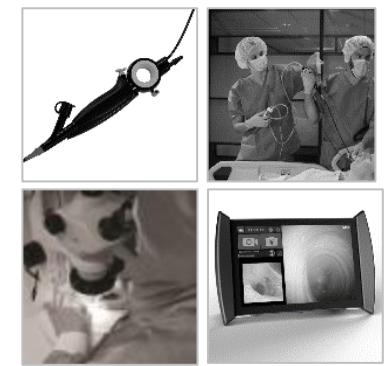


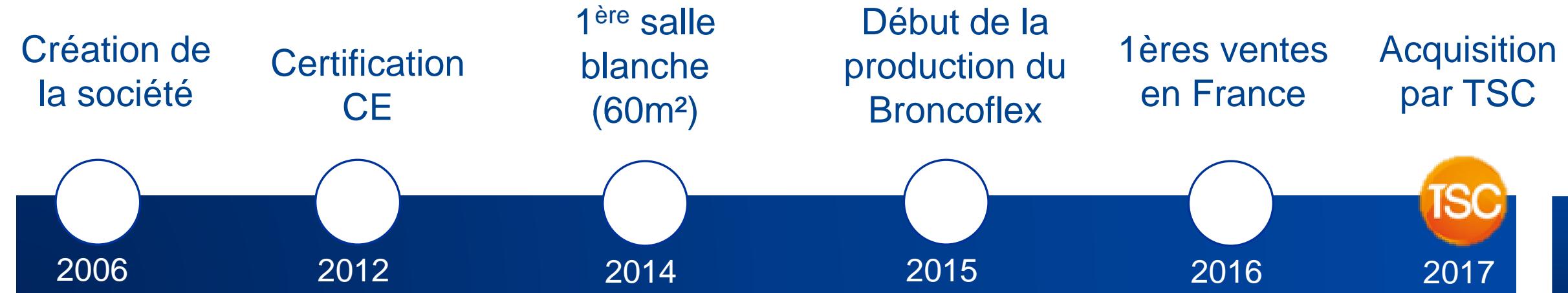
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Endovision



- Develops single-use flexible endoscopes
- Contributes to reduce the risk for cross contamination and the procedural cost







2^{ème} salle
blanche
(400m²)



Certification
CE-FDA
9 brevets

2018

2019

2020

2021

2022

2023

Automatisation

Diversification



Objectif
Production

2021

2022

2023



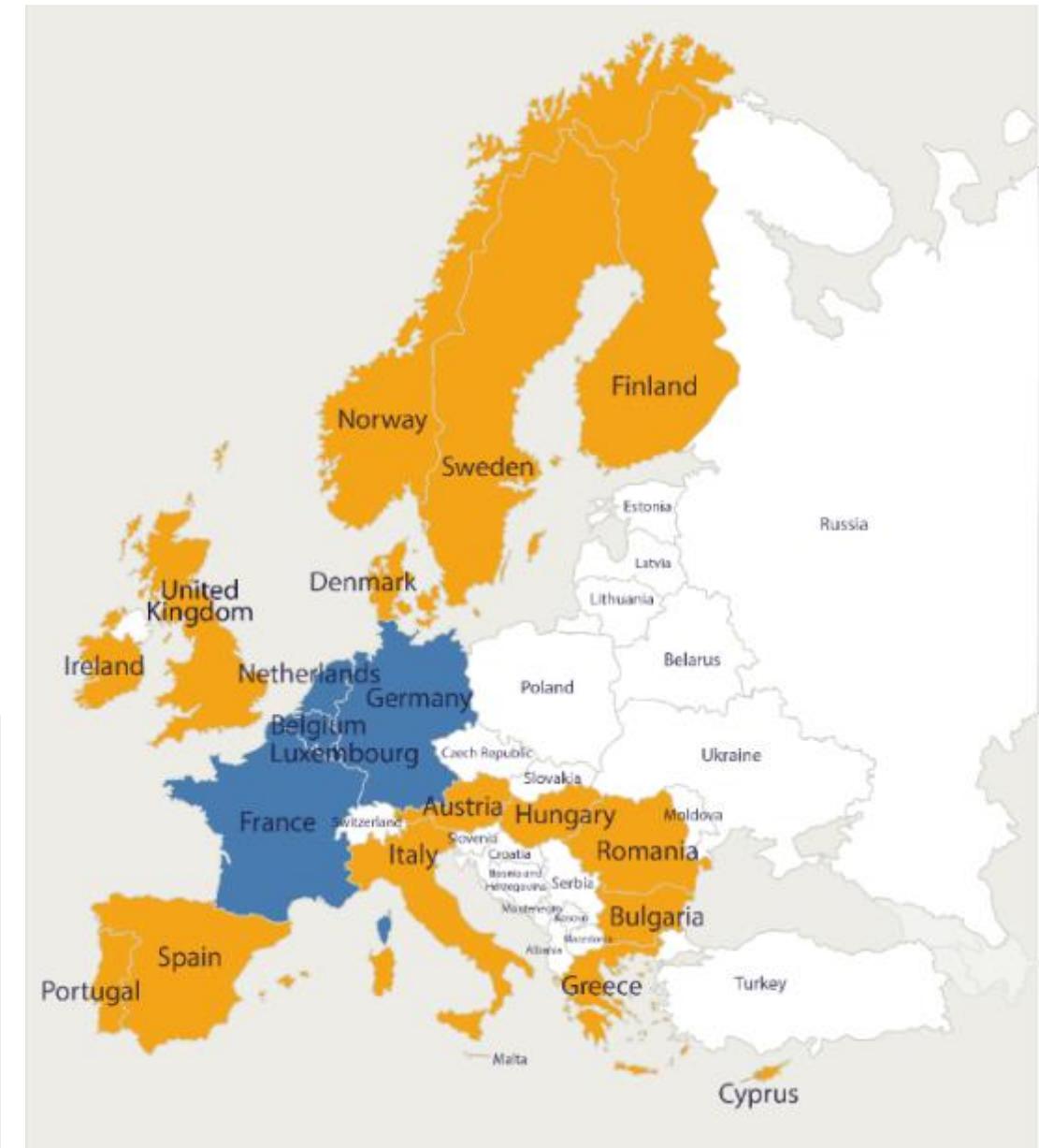
Zoom Endovision

Site de production de 2 400 m² :

- 400m² de Salle blanche
- 400m² de bureaux



Implantation





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Le Broncoflex







NAVIGATION DISTALE

Son extrémité distale profilée est moins large que les autres bronchoscopes à usage unique dotés d'un canal opérateur de 2.8mm. Cette miniaturisation favorise l'exploration des bronches distales en bénéficiant du diamètre réduit de la partie insérée avec un large canal. Le Broncoflex® Vortex peut être introduit dans les sondes endotrachéales de 6 mm ou plus*.



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INDICATIONS



LAVAGE BRONCHO-ALVÉOLAIRE (LBA) ★★★★



- Réanimation
- Endoscopie respiratoire



- Réanimateur
- Pneumologue



INTUBATION DIFFICILE ★★★★



- Réanimation
- Bloc opératoire



- Réanimateur
- Anesthésiste
- Urgentiste

INDICATIONS



TRACHÉOTOMIE PERCUTANÉE ★★★★



- Réanimation



- Réanimateur



UTILISATION D'INSTRUMENTS ★★★★



- Endoscopie respiratoire
- Réanimation



- Réanimateur
- Pneumologue

INDICATIONS



TOILETTE BRONCHIQUE ★★★★



- Réanimation
- Endoscopie respiratoire



- Réanimateur
- Pneumologue



VENTILATION UNI-PULMONAIRE ★★★★



- Bloc opératoire



- Anesthésiste

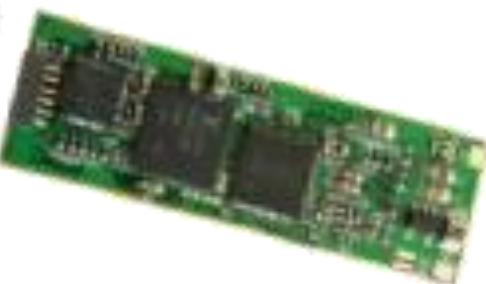
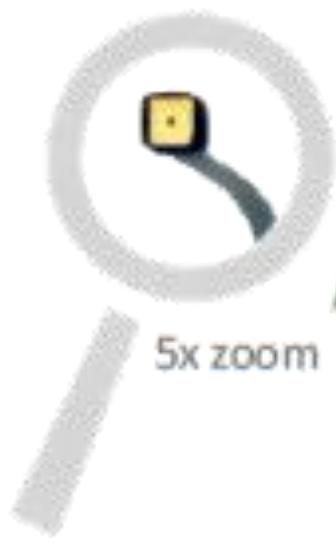
Architecture FPGA et traitement du signal dans un DM

Réutilisable – Usage unique

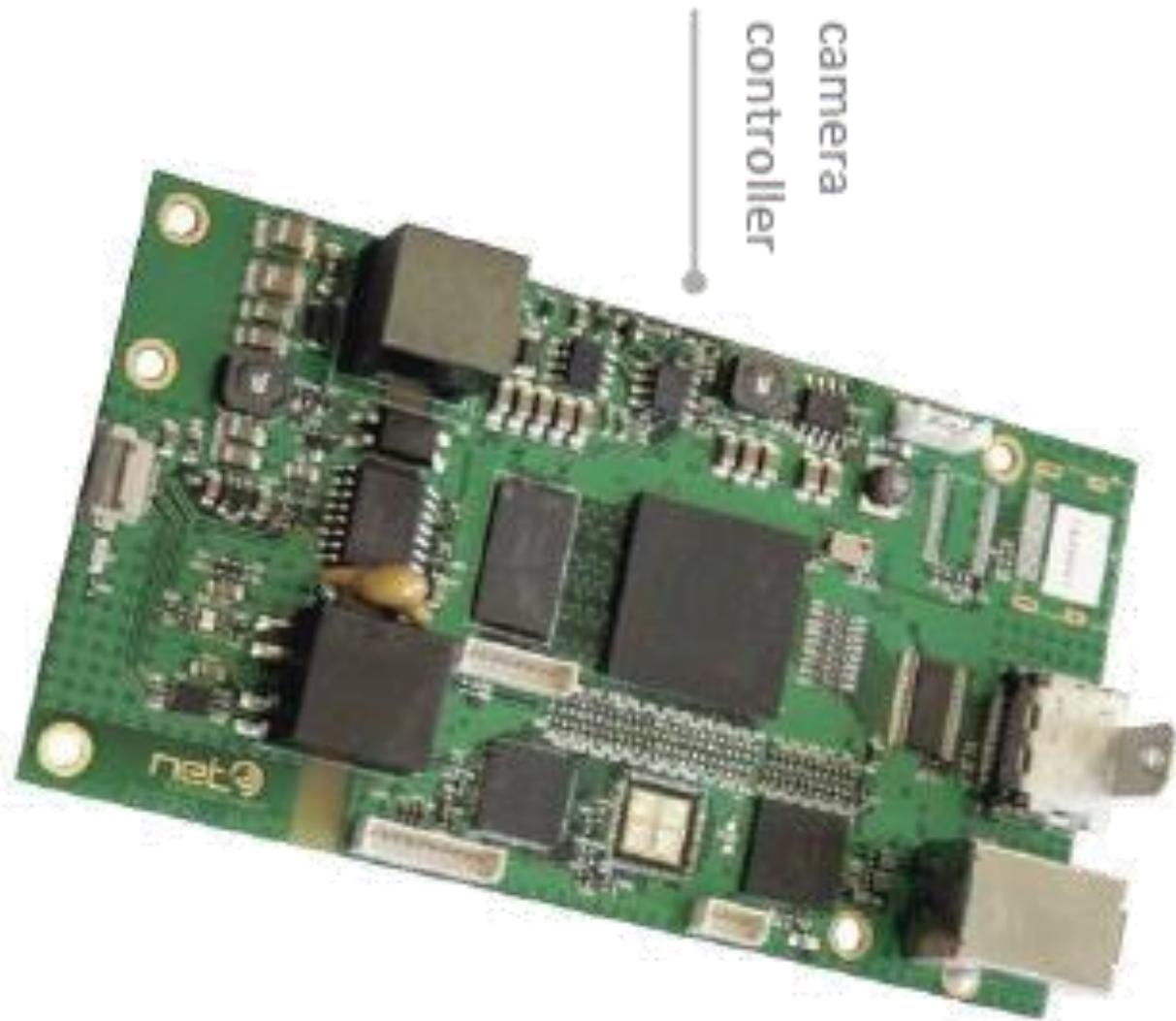


2012 V0 : conception traditionnelle
DA VINCI : déjà obsolète

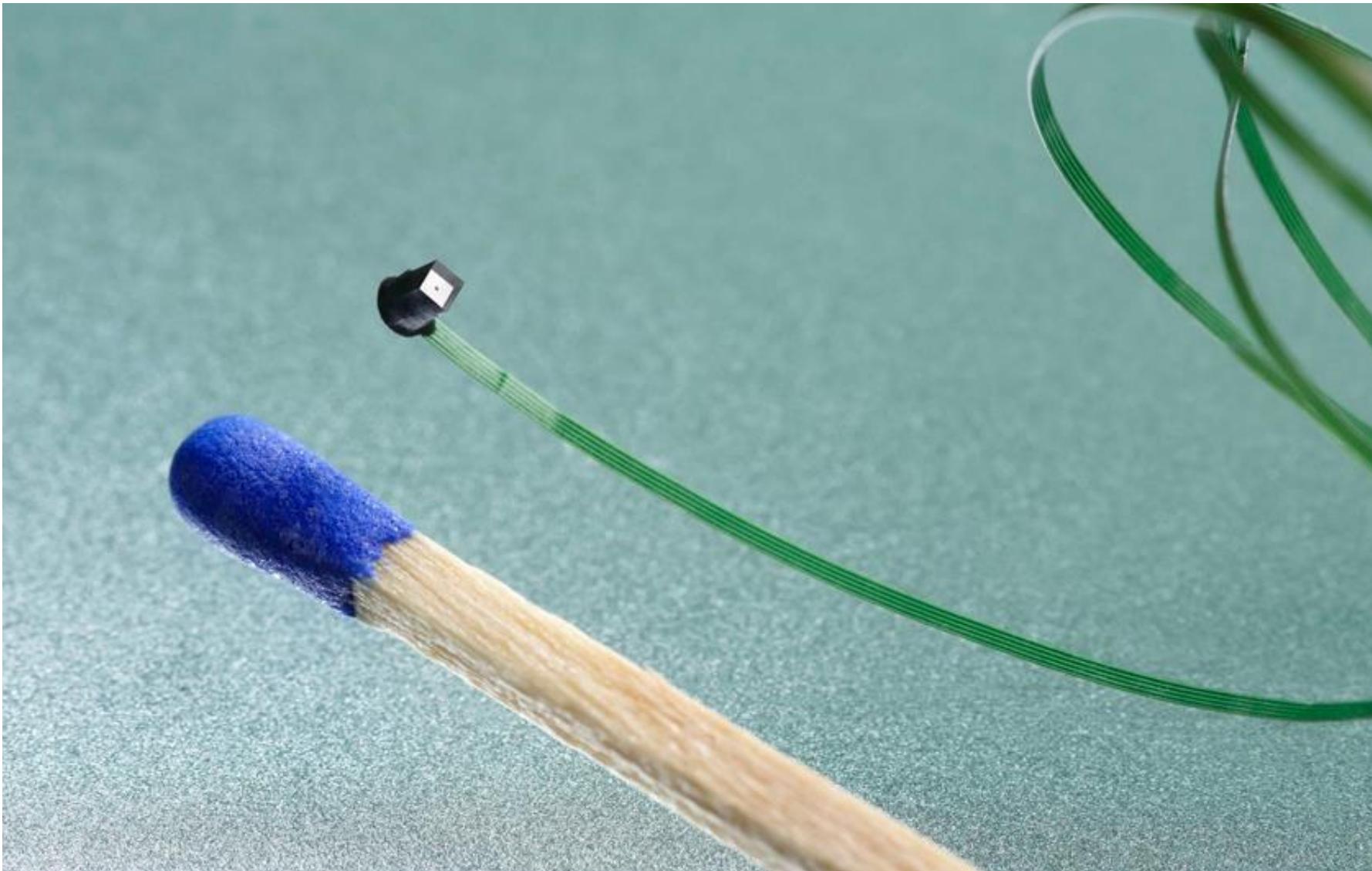




-2-



Développements : Caméra miniature



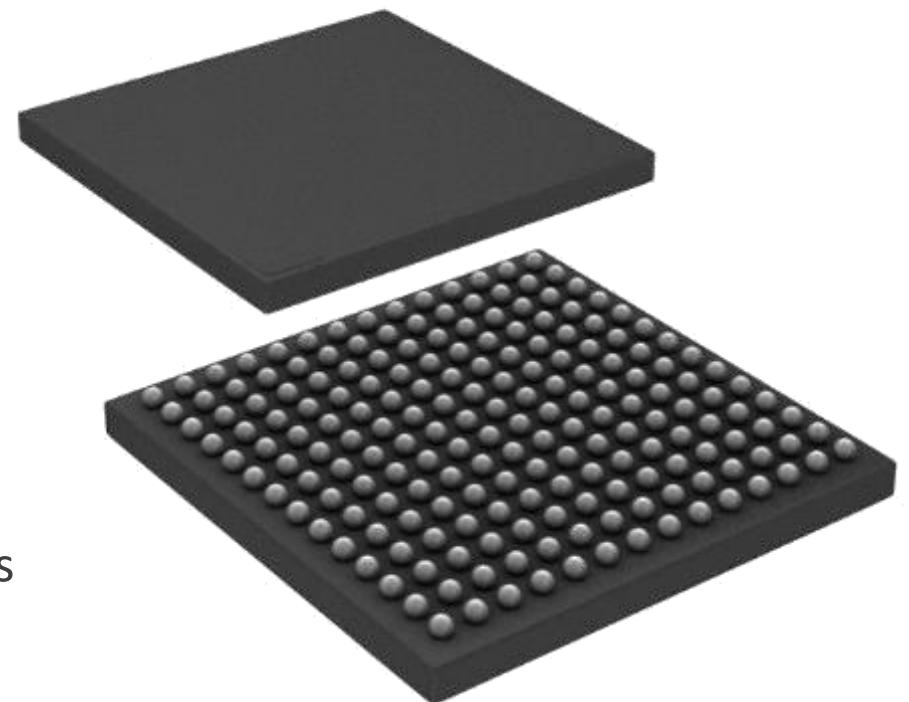


Séparation fonctions *prioritaires / secondaires*

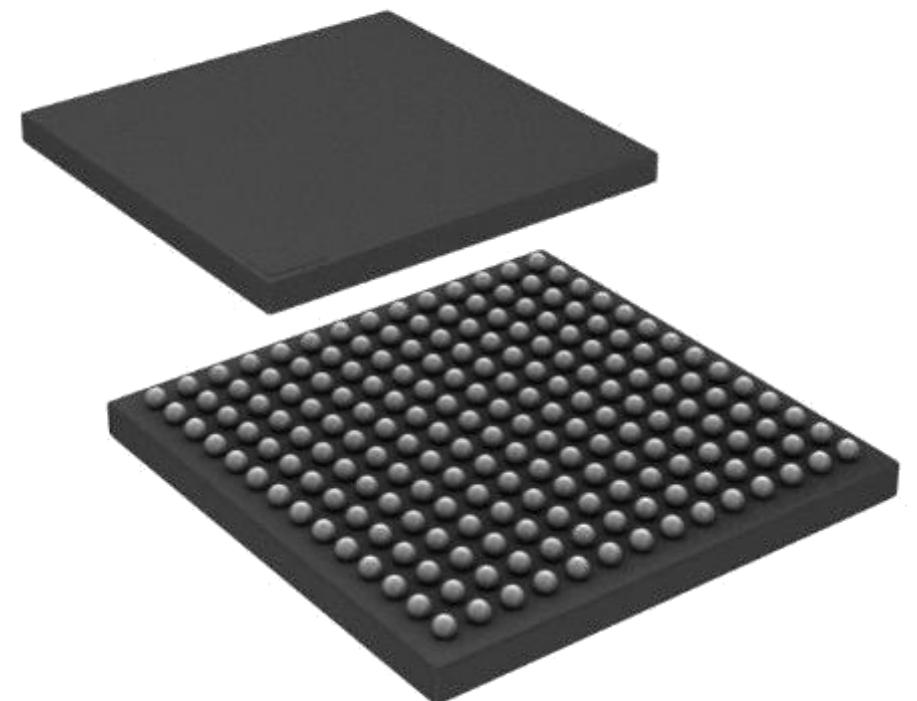
Traitemen
t image

IHM / gestion
(batt.usb...)

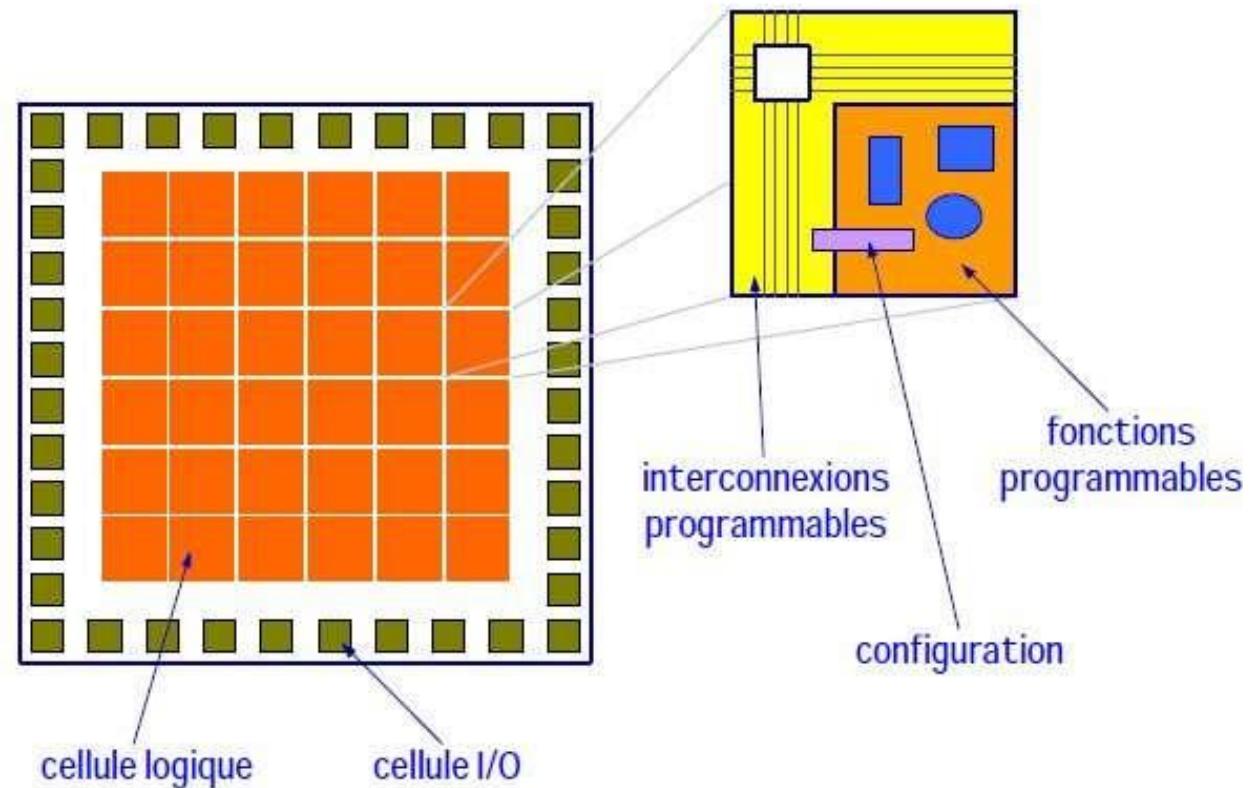
- ▶ Temps de traitement déterministe :
 - ▶ opérations en parallèle
- ▶ Latence maxi 0.100ms
- ▶ Traitement de l'image parallélisable
- ▶ Protection :
 - ▶ firmware difficilement copiable / peu de développeurs



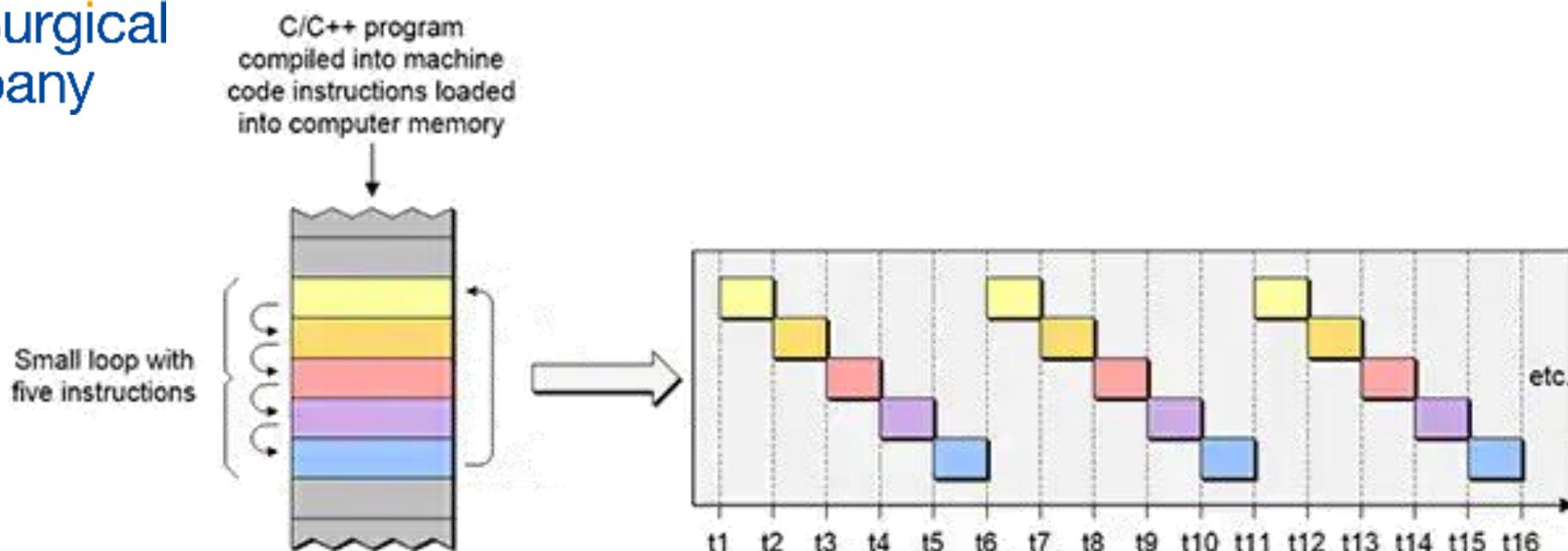
- ▶ Souplesse hardware
- ▶ Réaliser notre propre convertisseur
- ▶ Evolutif, différentes configuration (puissance, portes logiques)
- ▶ Déclinable sur différents systèmes
- ▶ Prix et disponibilité (avant 2021 !)



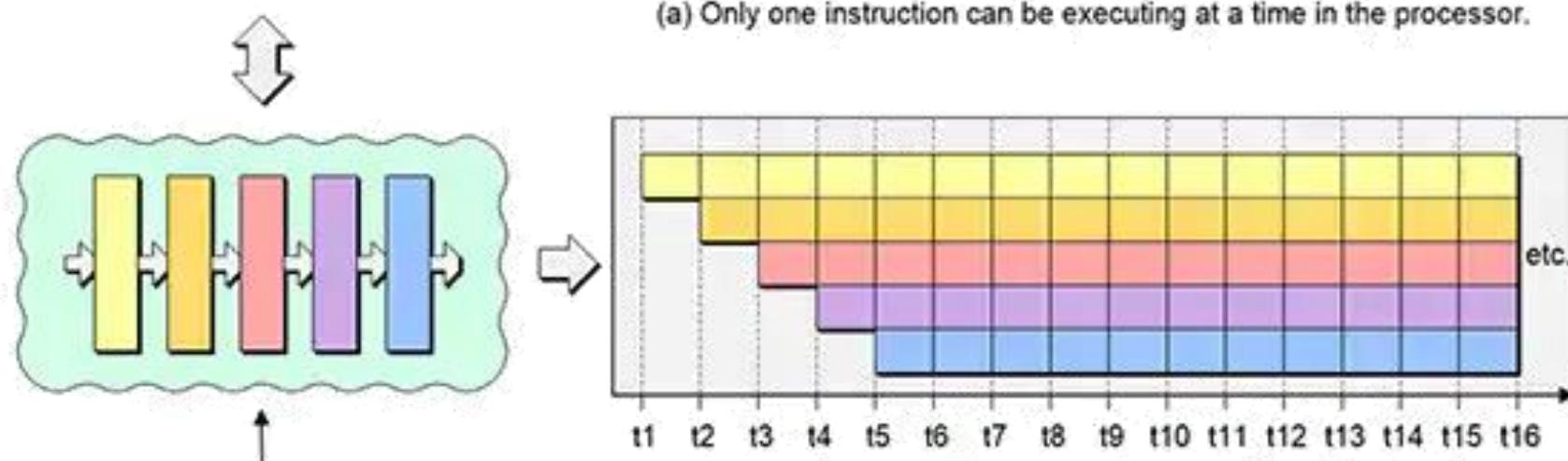
FPGA (field-programmable gate array)



Langage Firmware : VHDL ou Verilog

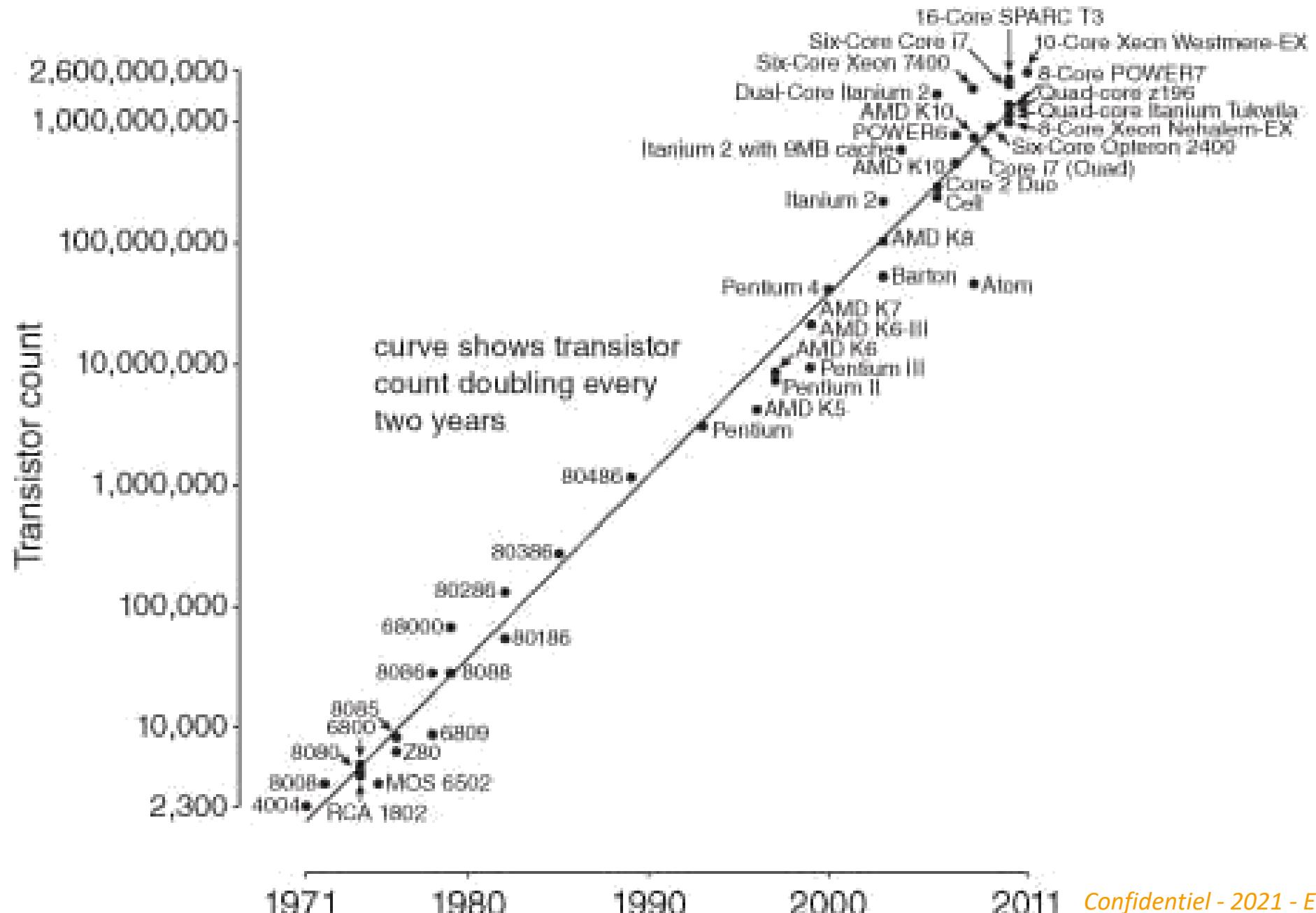


(a) Only one instruction can be executing at a time in the processor.



(b) Multiple functions can be executing simultaneously in the FPGA.

Verilog/VHDL
description synthesized
into logical functions
instantiated in the FPGA



Marché mondial

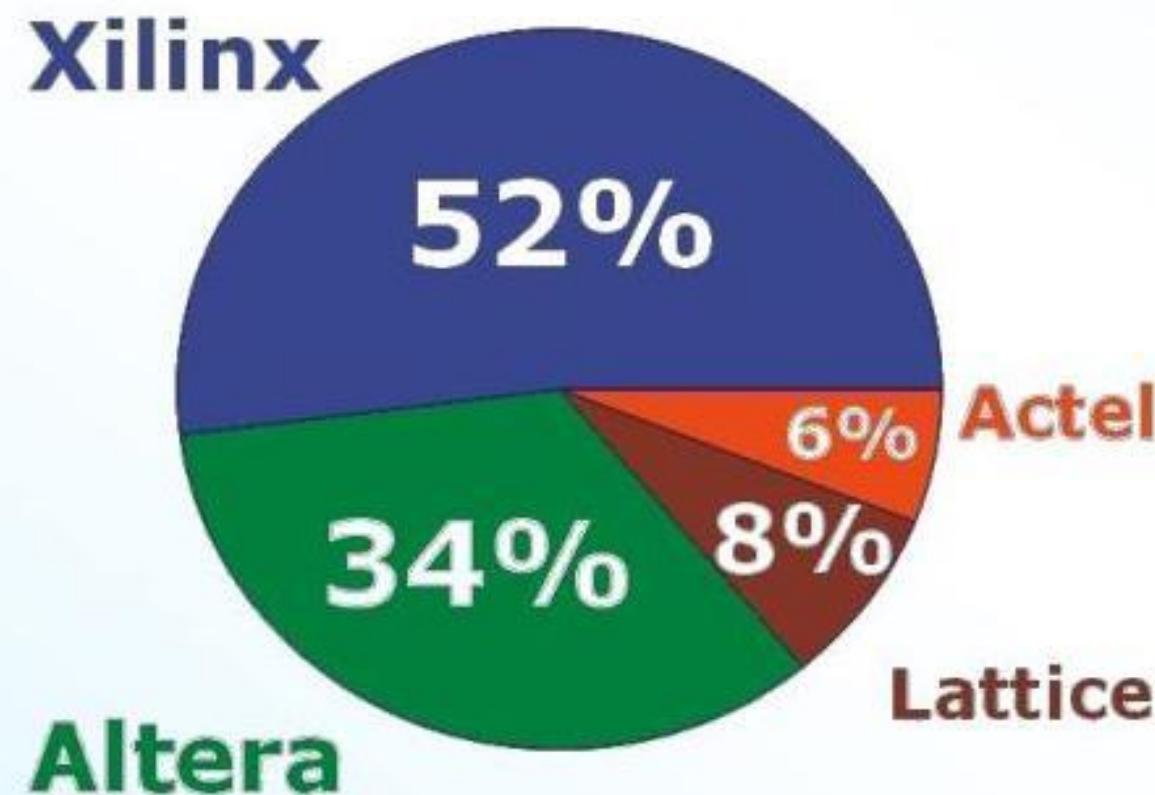
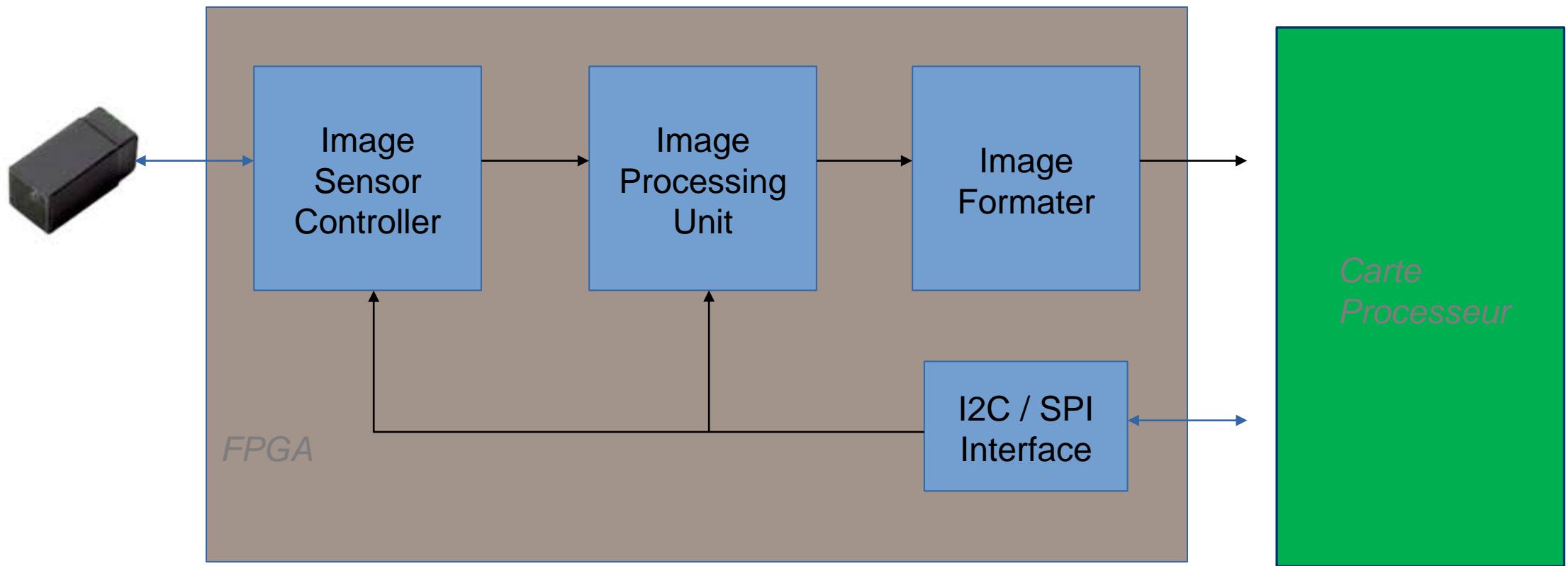
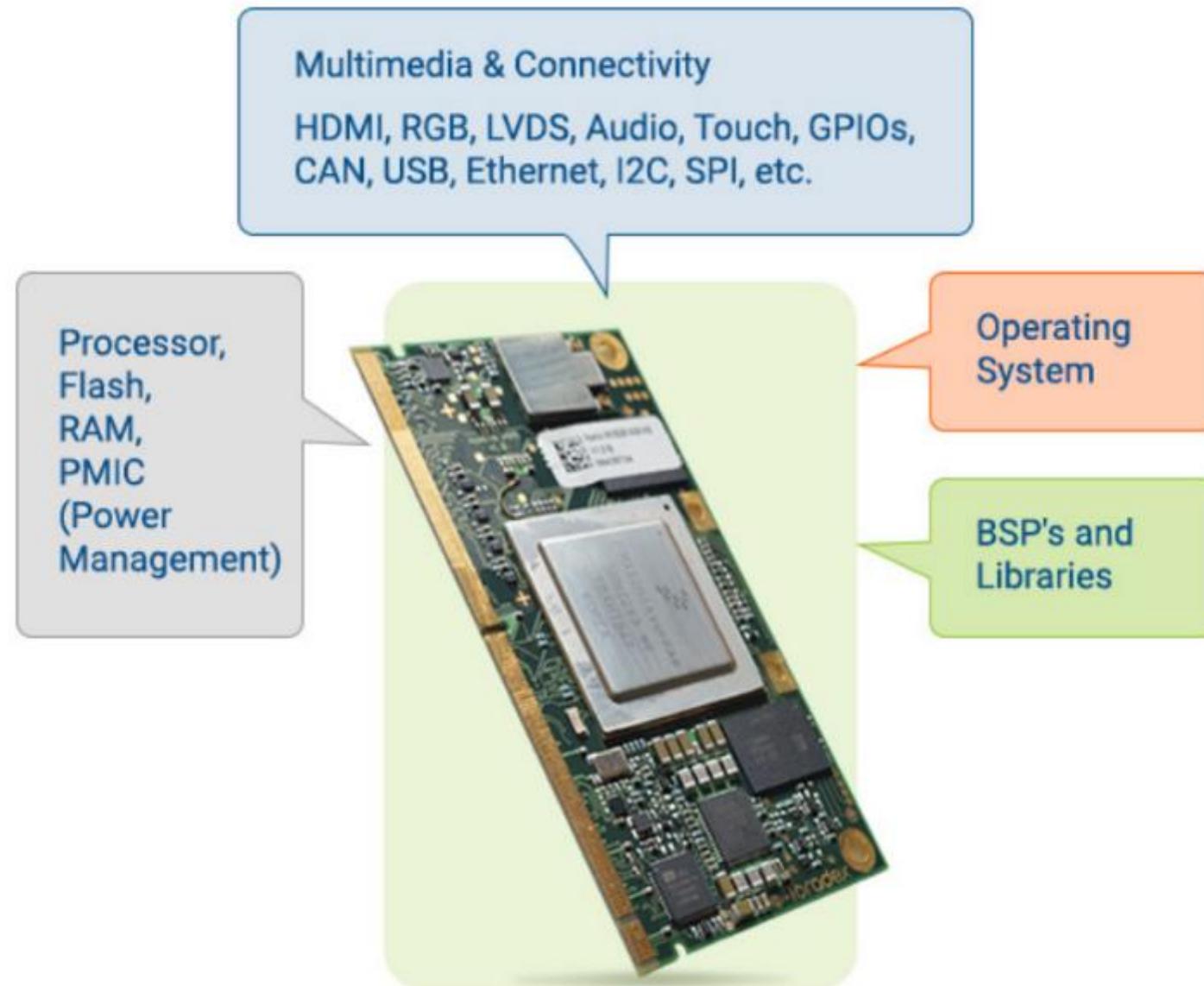


Figure 1 - PLD market share

Fonctions image



Carte processeur



Durée de vie
Evulsive

Traitement de l'image

- Suppression des pixels morts,
- Filtrage du bruit,
- Amélioration des contours,
- Rehausse de la dynamique (HDR par gamma),
- Conversion de couleur (RGB→YUV)
- ...

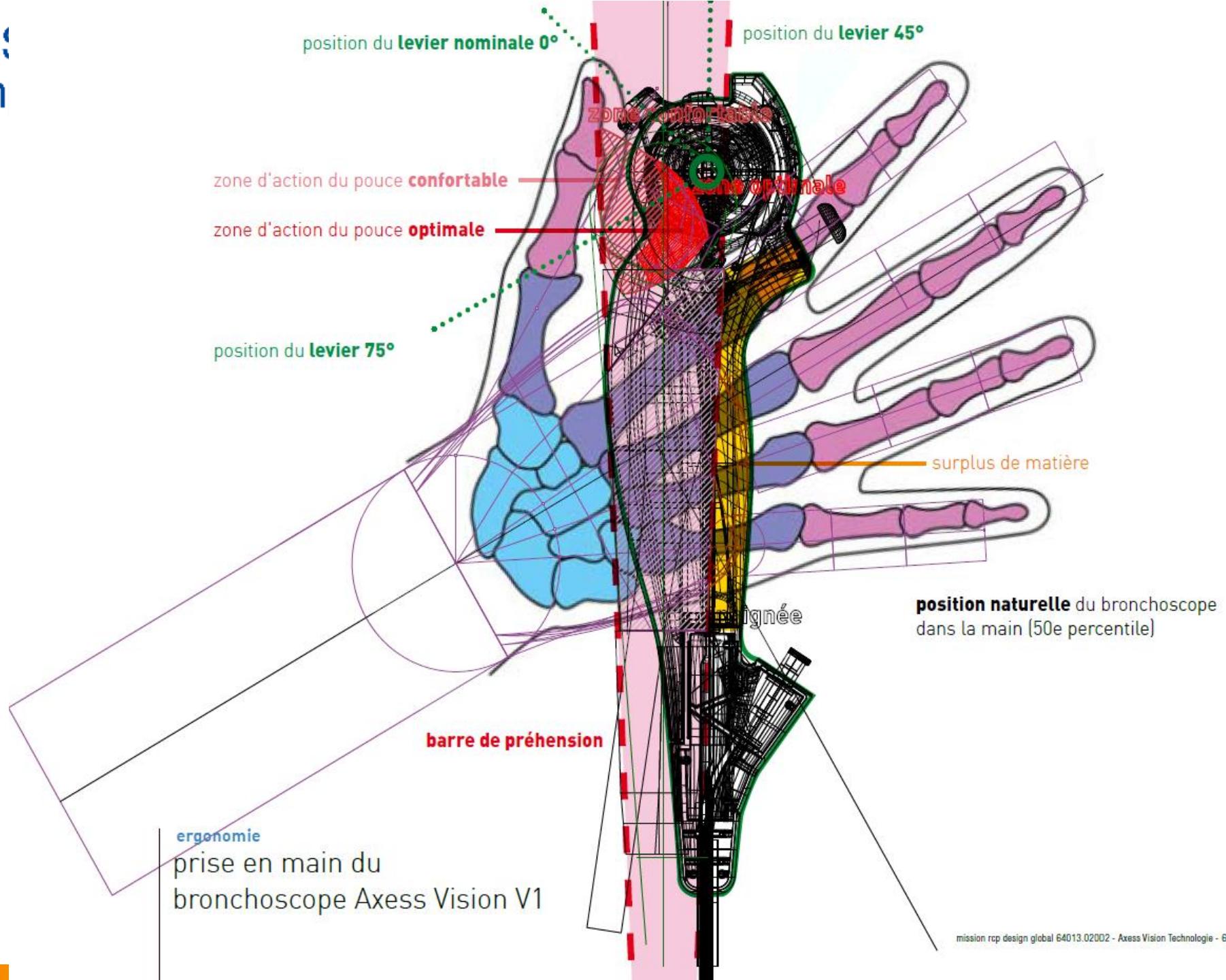
Industrialisation du design à la fabrication

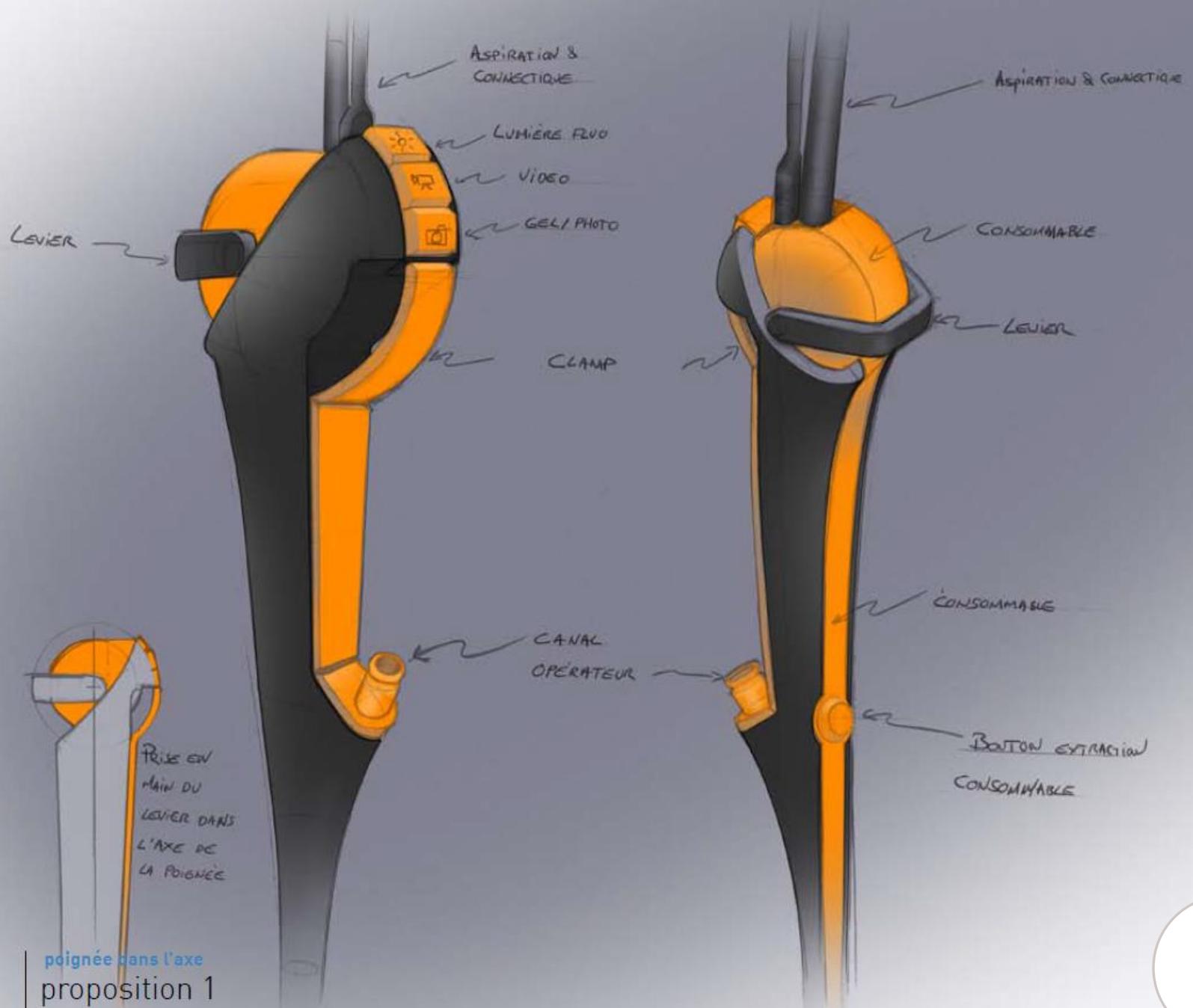
axess **VISION**
TECHNOLOGY

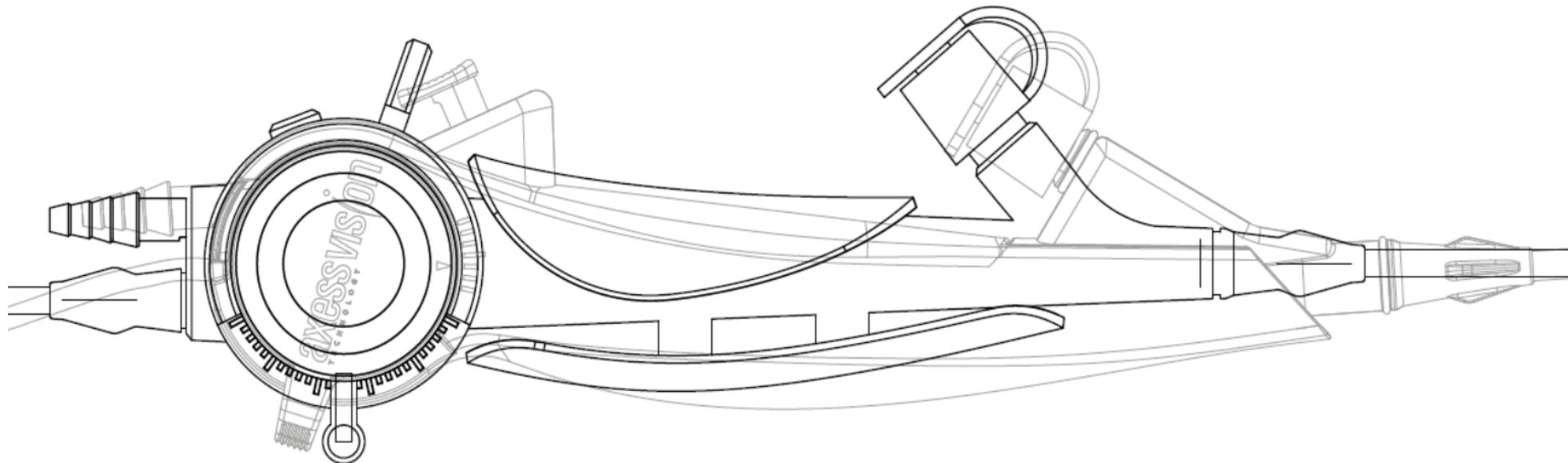
2012

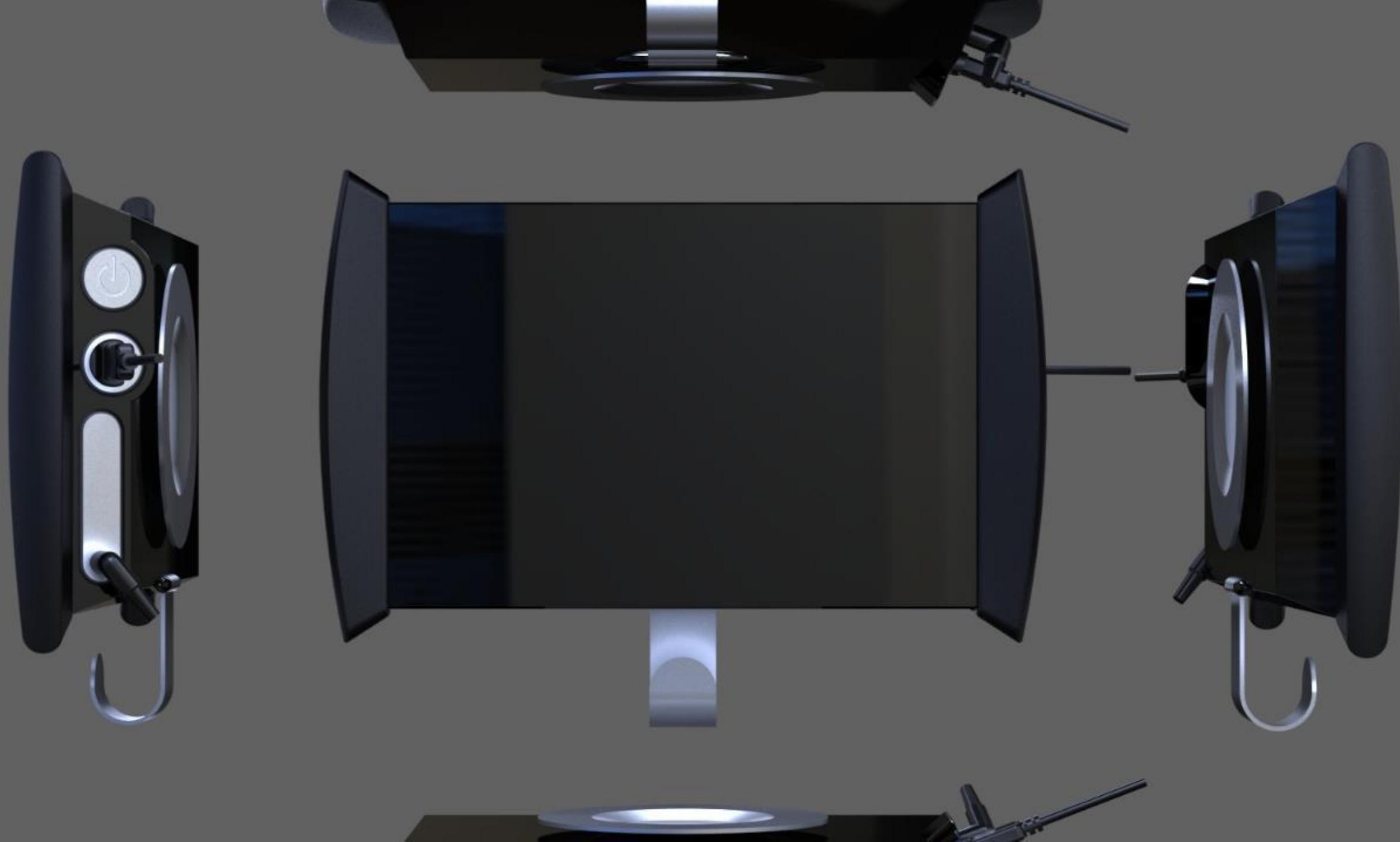


V0-
V1











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► Cresitt :

- Pré certification CEM, support conception
- Sourcing



► S2E2 :

- Sourcing
- Conseil, mise en relation



► Universités



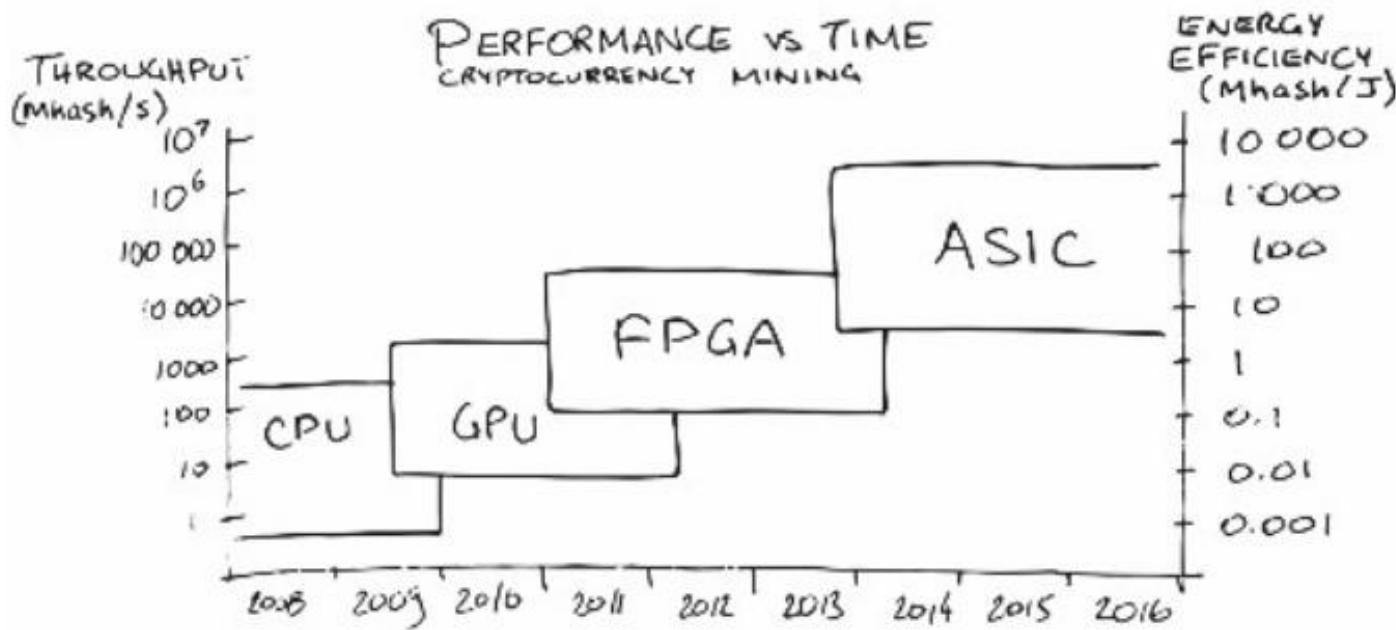
Merci de votre attention



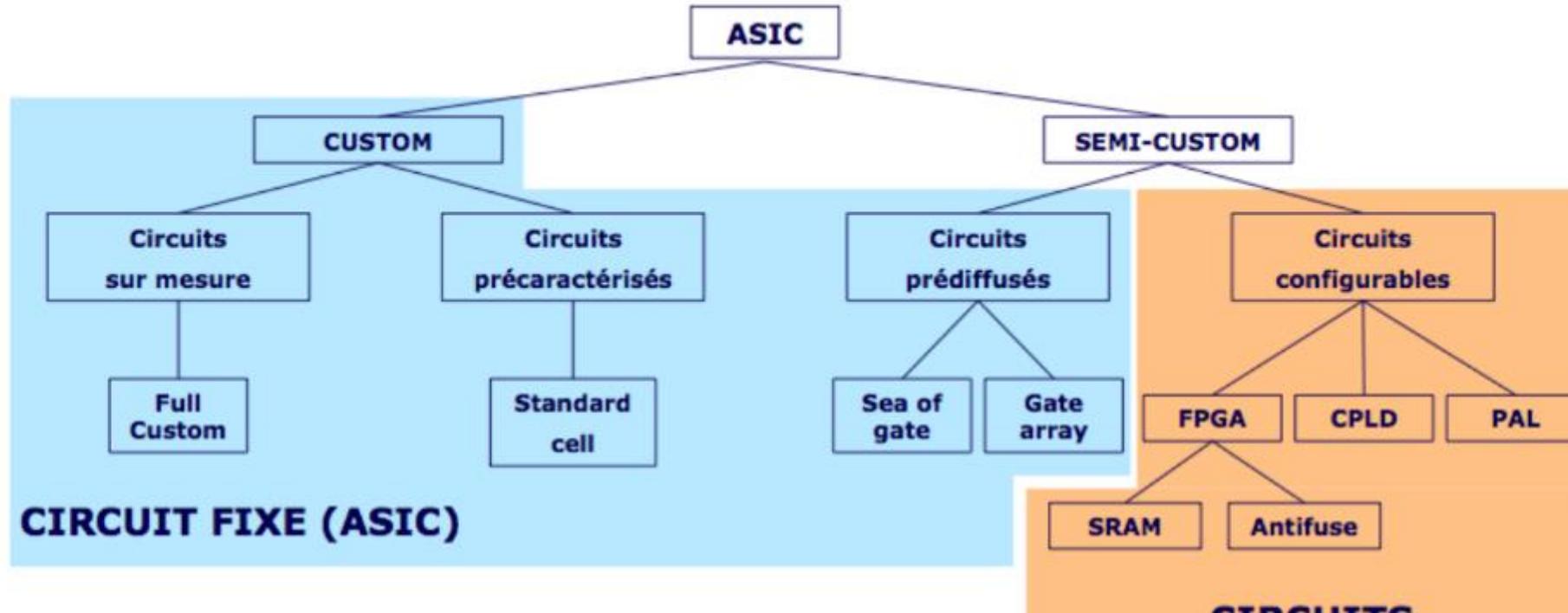
TALEXER
~~WANTED~~

**R&D / QUALITÉ /
PRODUCTION**

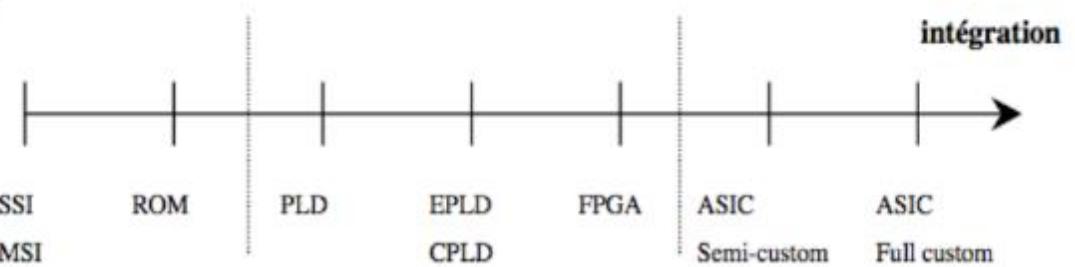
Annexe



- Single-core CPU: 1
- Multi-core CPU: 10
- GPU: 100
- FPGA: 1 000
- ASIC: 10 000 ~ 1 000 000



- ASIC** : Application Specific Integrated Circuit
- FPGA** : Field Programmable Gate Array
- CPLD** : Complex Programmable Logic De
- PAL** : Programmable Array Logic
- GAL** : Generic Array Logic = PAL
- SRAM** : Static Random Acess Memory



Cout annuel endoscopie pour 50 utilisations

	Axess Vision	Reutilisable
Investissement	1000	48 000
Maintenance	0	10 770
Désinfection	0	21 828
Dépréciation	350	9 600
Achat endoscopes Axess Vision	13 200	0
Couts humain nettoyage		35 000
TOTAL	13 553 €	77 198€
Cout à l'acte	264 €	1 544 €

Impact écologique pour 50 utilisations

	Axess Vision Usage Unique	Endoscope Réutilisable
Eau	0	73 383 litres
Produits chimiques	0	459 litres
Kg of déchets	15 kg	978 kg (1)

(1) Masques, gants, brosses, ...



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