



innovations  
for high  
performance  
microelectronics

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## **IHP Profile**

# **WISTP'07 FP7 Networking Session**

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# New Institute and Cleanroom

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## The Institute

- Founded in 1991; successor institution to the former institute of the East German Academy with extensive experience in silicon microelectronics
- 220 employees from 16 countries
- Member of the Gottfried Wilhelm Leibniz Society (WGL)

## Mission

- Strengthen the competitive position of the German and European microelectronic and communication research
- Act as an innovation center, leading research results towards prototypes
- Enhance the attractiveness of the region as location for high technology

## Strategy

- Create value through innovation
- Focus on solutions for wireless & broadband communications
- Development of forward-looking technologies and system-level prototypes
- Strategic partnerships

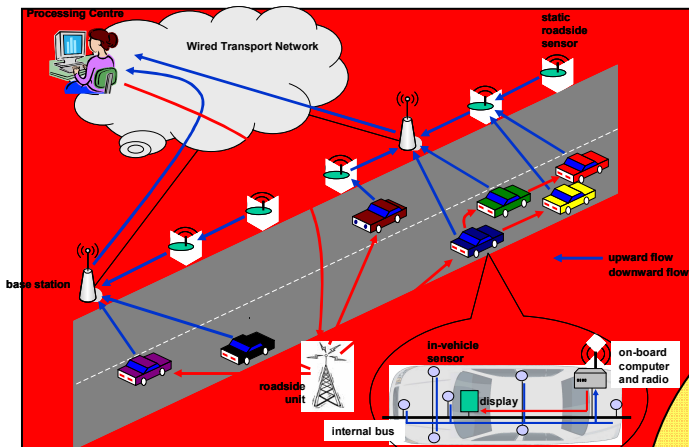
## Facilities

- **Complete innovation chain from materials to systems, including class-1 cleanroom, 0.13  $\mu\text{m}$  capable pilotline**

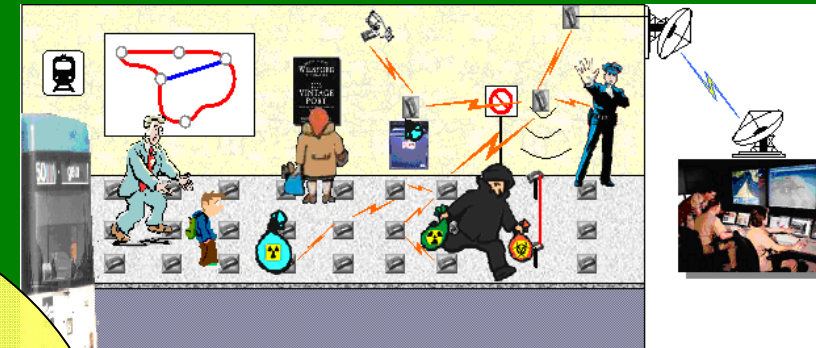
## Competencies

- **Systems for wireless communication**
- **RF circuit design**
- **Extension of silicon CMOS technologies**
- **Materials for microelectronic technology**

# Embedded Systems Application Areas



Machine-to-Machine

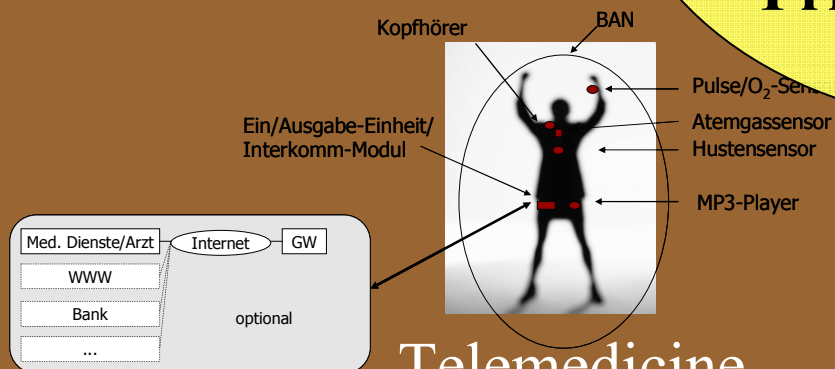


Homeland Security

Security ?? ☹

Reliability ??? ☹

Privacy?????? ☹

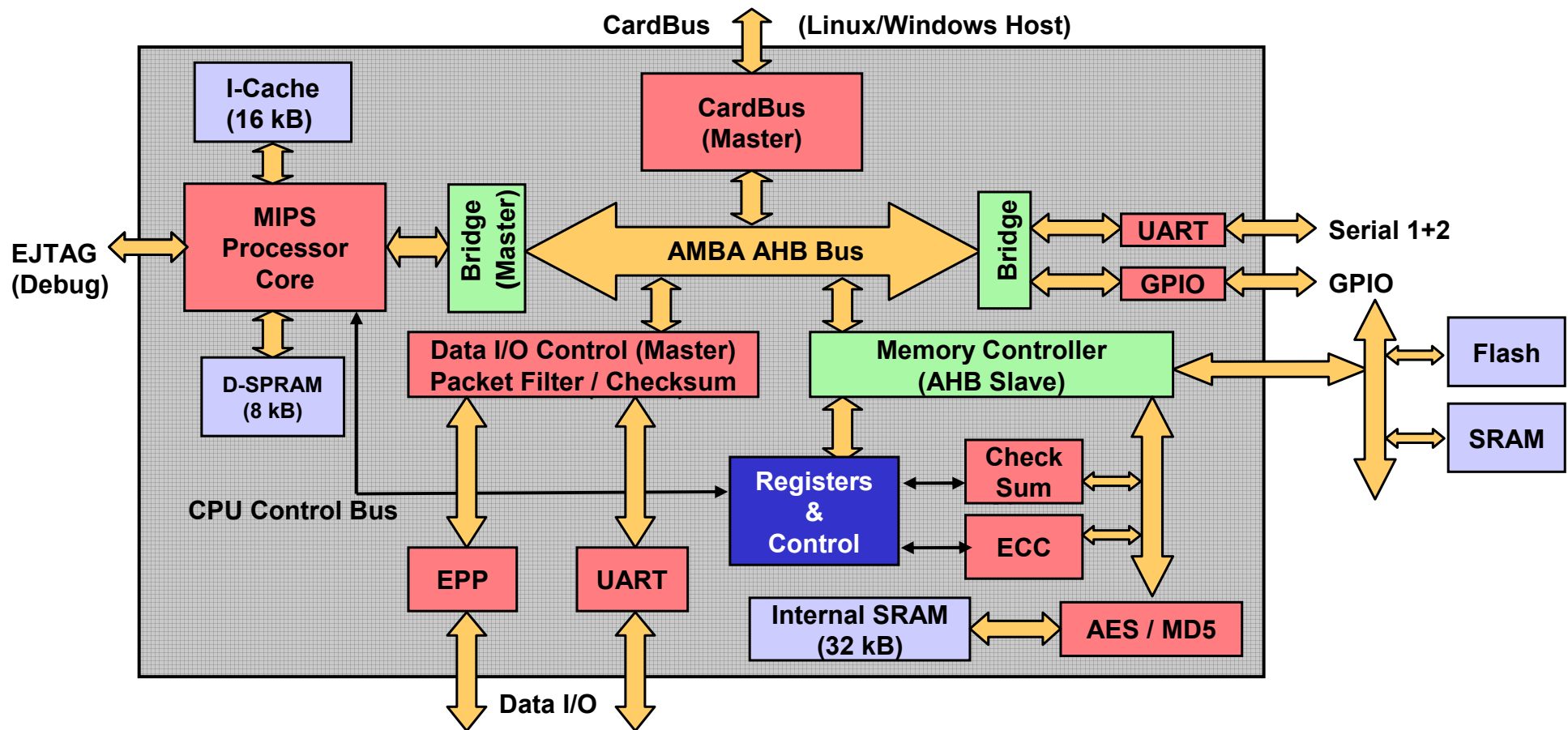


Telemedicine



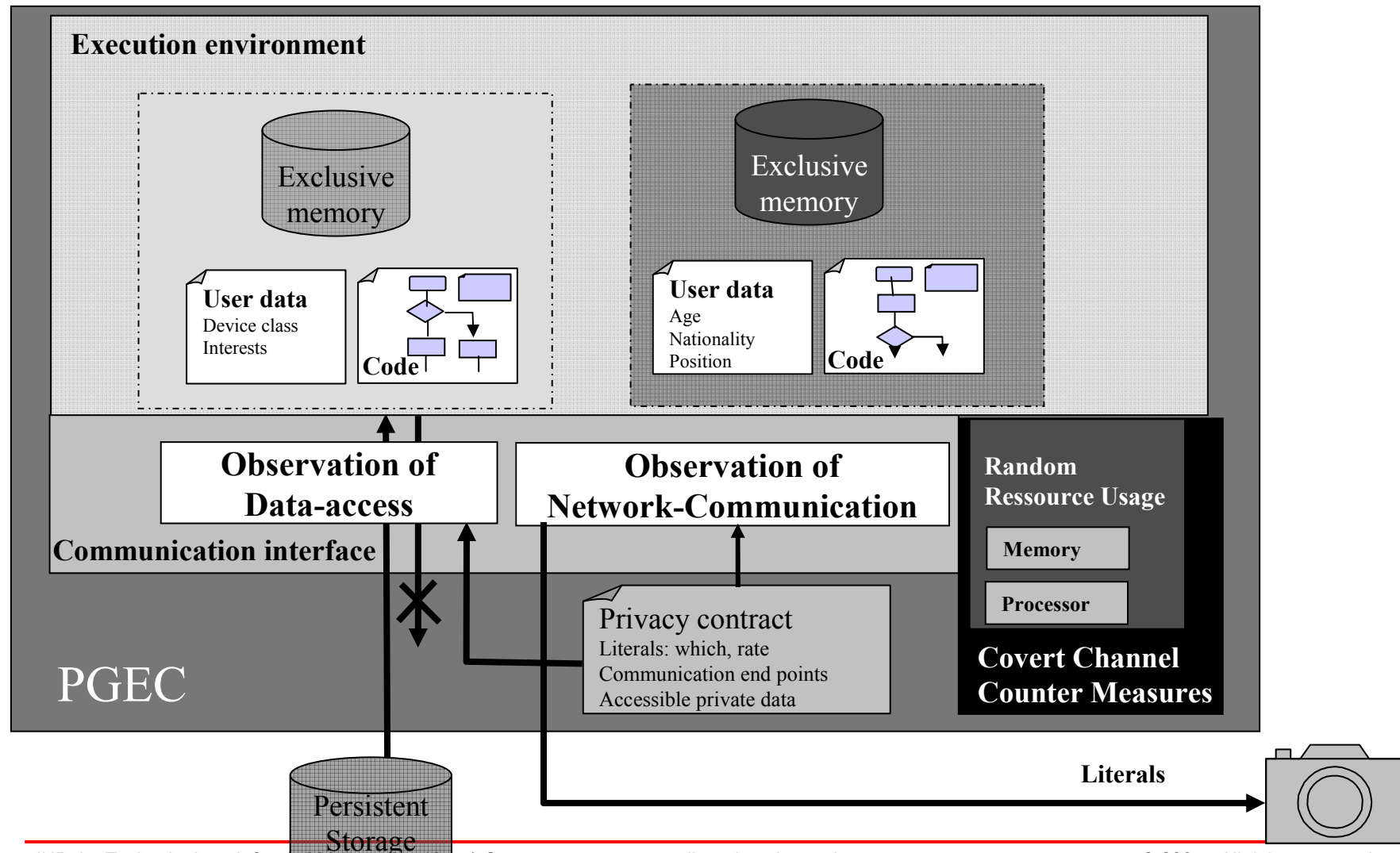
Location Based Services

## What do we have: ECC, AES, $\mu$ Controllers



# Privacy Guaranteeing Execution Container

Idea: One time use of data



## Project Ideas / What do we seek

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### Development of a European tamperproof sensor node:

- **Crypto hardware**
- **Counter means for tampering**
- **Secure OS for sensor nodes**
- **Secure protocols (routing etc.)**

### Privacy in pervasive systems

- **How to configure such as system**
- **How to deal with conflicting privacy settings**
- **How to know what additional information can be deduced from sensor readings**
- **How to ensure Privacy if Homeland Security is in place**  
**????? May be nothing to gain technically at the moment**

**Thank you for your attention**

**Questions or Comments**