How chip technology enables multiple electronic identity applications

ID4Africa
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There are many use cases in the real and the virtual world which require security and trust

Secure eGovernment

NeID, ePass, eHealth, eVoting

Contactless Applications

eGate Identification

Mobile Payment

Contactless Payment

Mobile Payment - NFC Secure

Contact-based Payment

Multi-Application

NFC Access Control

Transport & Ticketing

Mobile Communication

System / Device Security

Accessory Authentication

TPM – Integrity Verification

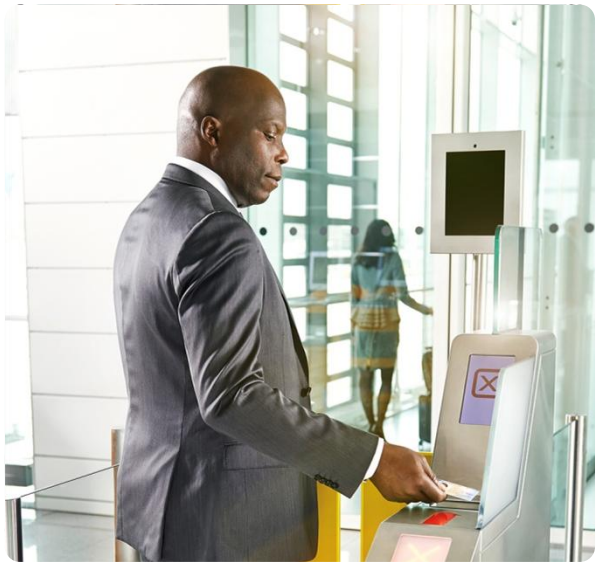
NFC Room Key

Infineon focuses on three areas with highly attractive future perspectives

Energy Efficiency

Mobility

Security



- Infineon Technologies AG exists since 1999, Headquarter near Munich, Germany
- ~34,000* employees worldwide (as of Jan. 2015)
- Revenue in Fiscal Year 2014: € 5.150 billion*

*non-audited figures

Why Multiple Electronic Identity Applications Will Dominate In Future

The combination of high use applications like health, transport and payment with a government-issued token seems to be attractive:

Payment
e.g.: Credit Card

Health
e.g.: eHealth Card

Transport
e.g.: bus ticket

Combination

Government
e.g.: national eID

Advantages of multi-applications

- Cost-efficiency
- Trust
- Convenience for citizens
- Technical possibilities

ABI research study (August 2014)

- Volume of converged cards will increase to 2.03 billion units in 2019
- Africa is focal point for convergence

An Electronic ID Card with Multiple Applications Offers Benefits to Citizens and Public Services

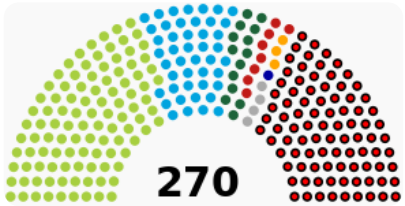
eGov Online Services (e.g. eTax)

ePurse

eTravel Function

eTicket (Public Transport)

eVoting



Multi-Application eID Card

eHealth

Benefits

Citizens

- Convenience for citizens
- Citizens trust in government-issued cards
- Help for the unbanked

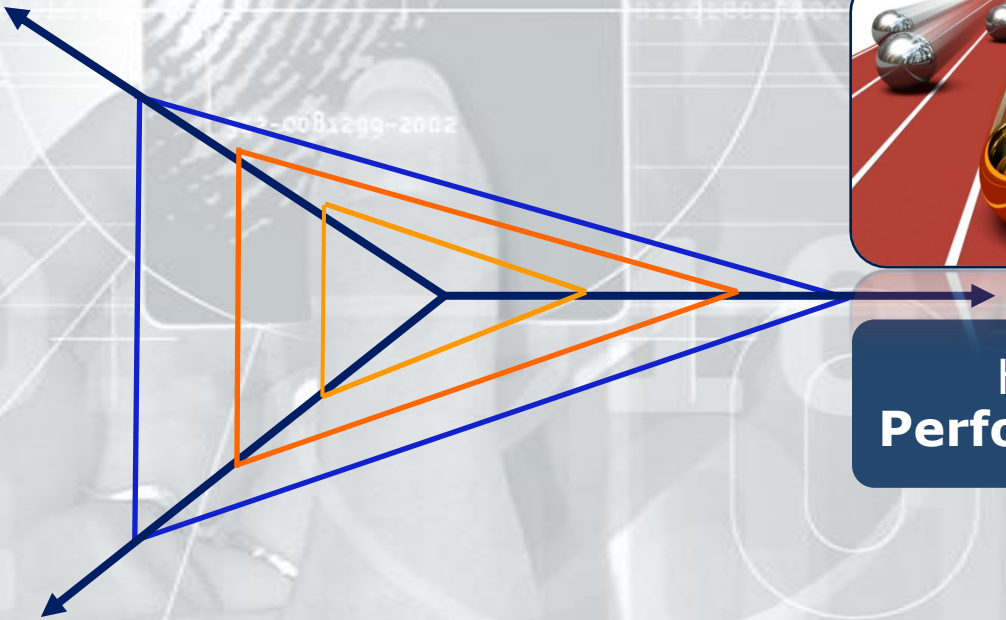
Public Services

- Paperless cost-efficiency for administrations
- Faster communication within public authorities

Key requirements for eID documents

Long Lasting
Security

Flexible &
Large
Memory

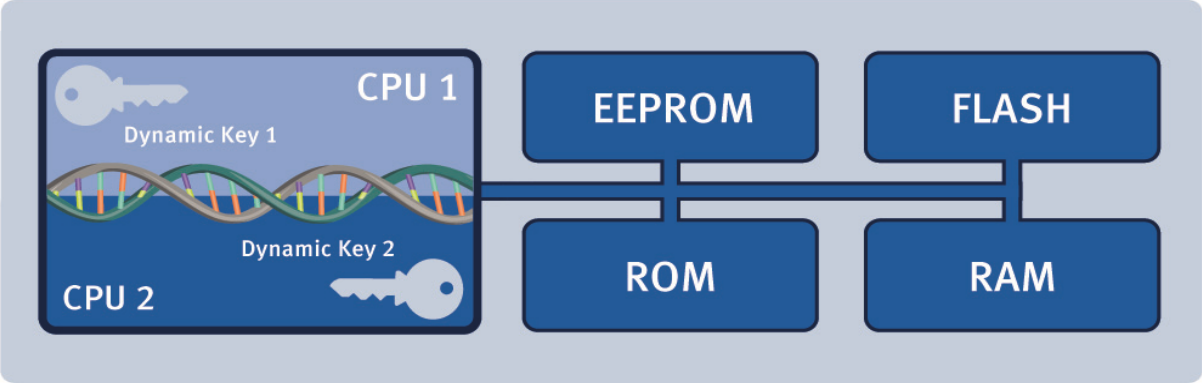


High
Performance

Digital Security – the standard for secure electronic ID documents

- Completely encrypted storage and processing of on-chip data (leaving no plaintext) – incl. **calculation with encrypted data in the CPU itself**
- **Two CPUs** – continuously checking each other - and a **comprehensive error-detection**

- **Long lasting security** – even protection against new upcoming attacks
- Widely **independent from classic security sensors**



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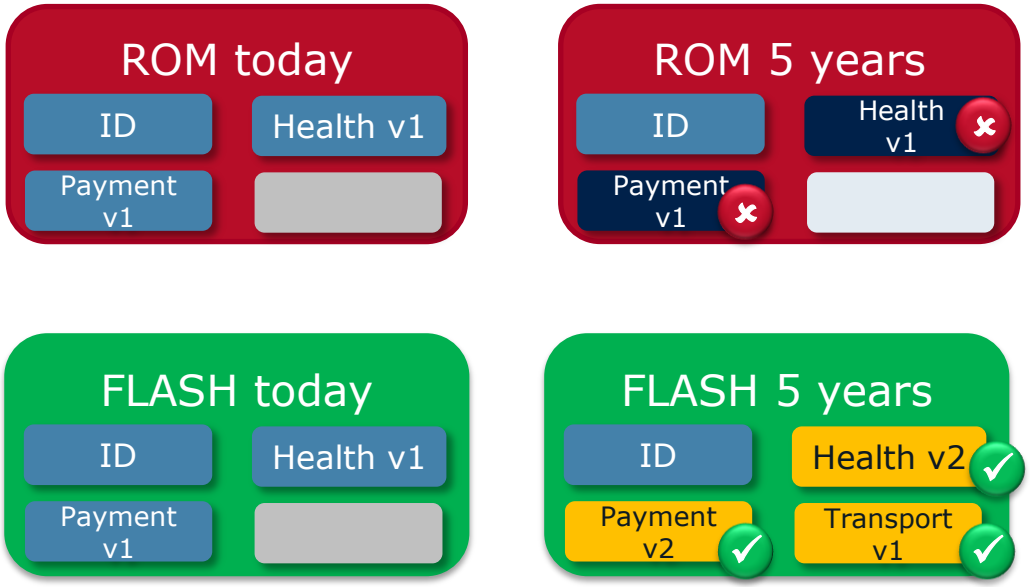
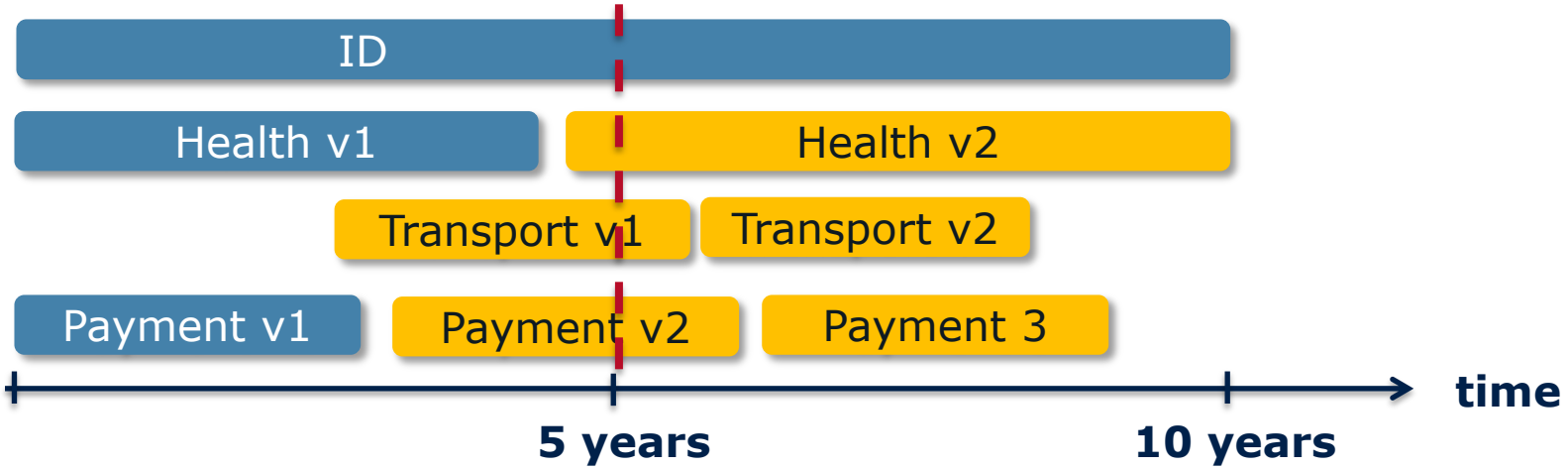
Multi Application & Convergence Trends Call For Flash Controllers (flexible & large memory)

Multi App Challenge

- Host different commercial and governmental applications
- Allocate memory space for each application provider
- Support different app lifespans and maintenance cycles
- Offer secure mechanism for post-issuance updates on card





An growing amount of user data needs to be read-out efficiently (performance)

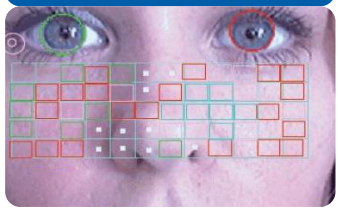
User data in eDocs is increasing

- Biometric information includes not only face, but also fingerprint, iris, etc.
- 4th generation ePassports with LDS 2.0 could store hundreds of travel records (eStamps) and eVISA
- Multiapplication cards combine several applications in one document

Fingerprint(s)

Face

Add'l photos



Fast read-out required

- To avoid longer document processing times, data have to be read out faster
- Contactless eID documents should use the Very High Bit Rates (VHBR) transmission standard

How to meet requirements for state-of-the-art and next generation eID documents with modern chip technology?

Digital Security

- ☑ Comprehensive error detection
- ☑ Self-checking dual CPU

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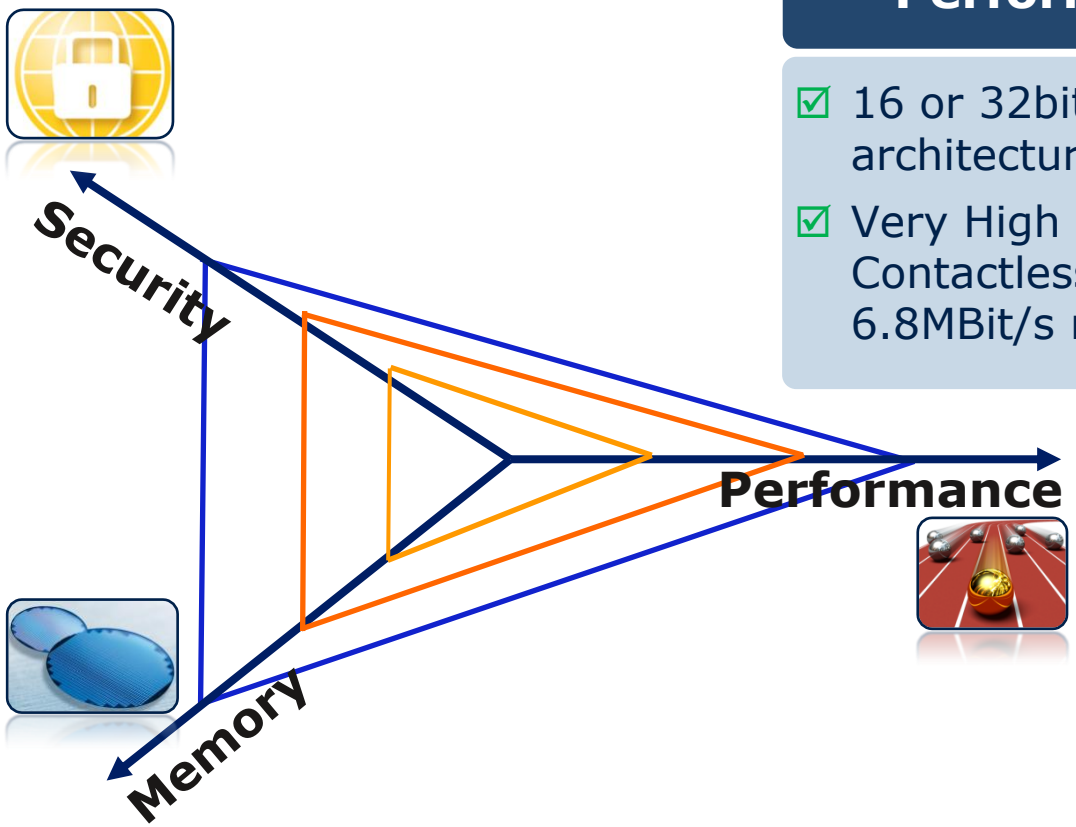
Flash Memory

- ☑ Flexibility & short time to market
- ☑ Memory size of up to 1MB

SOLID FLASH™ Mega Memory



Performance

- ☑ 16 or 32bit architecture
- ☑ Very High Bit Rate Contactless Speed @ 6.8MBit/s required

VHBR

Thank you!

Contact: ingo.liersch@infineon.com

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