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Banking & ID



Banking & ID market

Strong expertise in the smartcard industry



Banking



Transport



Identity



PayTV



Wearable

A full range of banking solutions

Contact, dual Interface ICs and system-on-chip solutions

ST31 Secure MCU

- 32-bit ARM SC000 CPU
- Multiprotocol (ISO7816, ISO14443 AB, ISO18092, VHBR)
- EMVCO & Common Criteria-certified

STPay ST Secure Payment solution

- Ready-to-use proven banking offer
- Multiple International & Domestic Payment schemes supported
- Contact and Dual IF offers
- Widely used by > 40 customers worldwide

STPay

Inlay



Applications



Operating system

Java, Prisma, Advantis

ST31 secure MCU

Contact and dual interface

ST31

Banking & ID platforms

Secure MCU platforms

ST23 / ST31

- 8bit CPU
- 90nm EEPROM NVM
- PKI co-processor
- CC EAL6+, EMVCo
- ISO 7816
- RF ISO 14443

More than 3 Billion units shipped to date



ST31

- 32-bit ARM® SC000
- 80nm Flash NVM
- PKI co-processor
- CC EAL5+, EMVCo
- ISO 7816
- RF ISO 14443, 18092

- ARM SC000 performance
- Flash flexibility



ST31

- 32-bit ARM® SC000
- 40nm Flash NVM
- PKI co-processor
- CC EAL6+, EMVCo
- ISO 7816, GPIOs
- RF ISO 14443, 18092
- RF Harvesting for Biometry

- Smaller die size
- Optimized power consumption

... 2013

2014 - 2016

2017 - 2022



ST31P450 key product features

Best-in-class performance and low-power design

Memory

- eNVM : 450 Kbytes, 40nm Flash
- RAM : 10KB user (+2KB Nescript)

Enhanced HW Crypto

- EDES
- AES
- RSA
- ECC

Firmware & Libraries

- MIFARE Classic® 1.5, MIFARE Plus® EV1, DESFire® EV2
- NesLib 6.4
- Firmware v3, PU tools (with reference Implementation)

Interfaces

- ISO 7816
- ISO 14443 Type A

Tuning Capacitance

- 68pF

Security Certifications

- EMVCo, CC EAL5+, CUP
- FIPS 140-2 level 3 compliancy (NIST SP800-90B / Jan 2018)

Supply

- Class A & Class B
- Class C protected by a Detector

Temperature Range

- -25/85°C - Temperature sensor

Packages

- Dual (D7x)
- Contact (D1x)
- Wafers down to 75µm
- Gold bumping

- Certified by



- Compliant with



ST31P450 key benefits

A new technology, better performance, a state-of-the-art product

A competitive product



- Highly optimized die size
- 12" wafer / 28Ku good die on wafer

An enhanced performance



- < 200ms banking contactless transaction (33% gain versus last platform)

An easier design



- Unique setting whatever the antenna (from class 1 to 6 antenna)
- Boot time optimization

More security



- Dual core architecture (Lockstep) and EDC*
- Temperature sensors
- EMVCo, CC, CUP, FIPS certification

Better robustness



- Fully interoperable with market readers
- Noise immunity improvement

*Error Detection Code

STPay ST Secure payment solution

A ready-to-use banking solution

STPay

1+ billion units sold
in 10 years

Calypso & MIFARE®
technologies supported

10+ Payment schemes
certified

Multiple end applications
(cards, wearables)

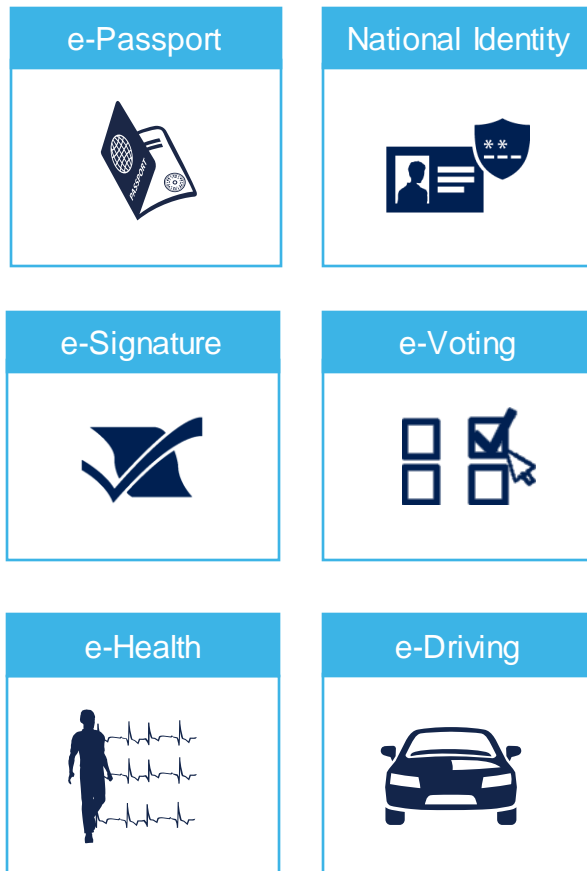
STPay-Topaz



- 40 nm Flash technology
- Best-in-class RF and low-power performance
- Improved user experience
- Wide range of packaging offer

Identification solutions

Contact & dual-interface turnkey solutions



- Best-in-class **ST31 Secure MCU**
 - 32-bit ARM SC000 CPU
 - Multi-protocol (ISO7816, ISO14443 A/B/F, VHBR)
 - EMVCo and Common Criteria EAL6+
- **System on Chip (SoC)**
 - Complete solution with in-house or partners' OS
 - Target applications such as e-Passport, National or resident eID, Tachographs

Biometric system-on-card (BSoC) overview

Biometrics card market overview

- Estimated Biometrics payment cards TAM 120Mu in 2023 (ABI source)
- Expected Market deployment in 2021
- Multiple application segments supported



Banking card



ID card



Health card



Access control card

An enhanced secure & easy to use solution

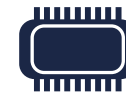
- Unicity granted (Not transferable, Not duplicable)
- Suitable for PIN-less operations (Toll gate, health cards, ctless transactions)
- Usable in conjunction with PIN code
- Easy to use (Multi platform technology, nothing to remember)

An advanced solution



Sensors

+



MCU

+



Secure element

RF
Pow er mgt
Memory
Appli software

+



Inlay

+



Card

Biometric System-on-Cards: the key challenges

Market maturity



- User acceptance
- Card cost

Technical requirements



- Transaction performance
- Power management (without battery or super capacity when RF)
- Standardization

System interoperability & security



- Component isolation
- **Anti-spoofing protection**
- **User convenience FRR / FAR trade-off**

Card life cycle

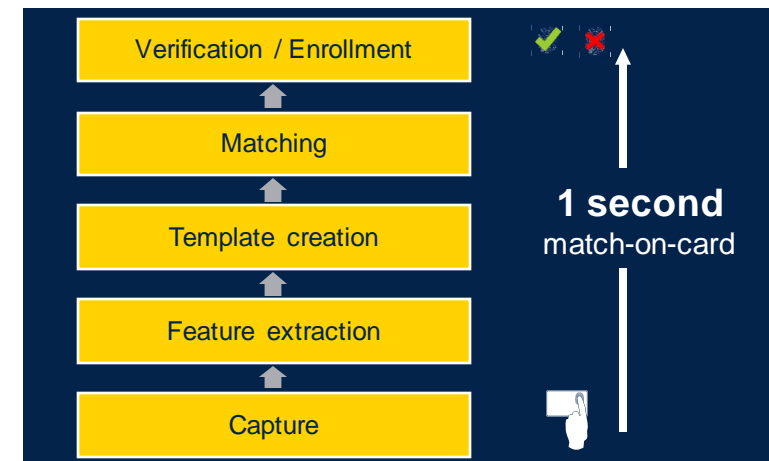


- Strongly depends on daily transaction amounts (unpredictable) and power management types

Card manufacturing



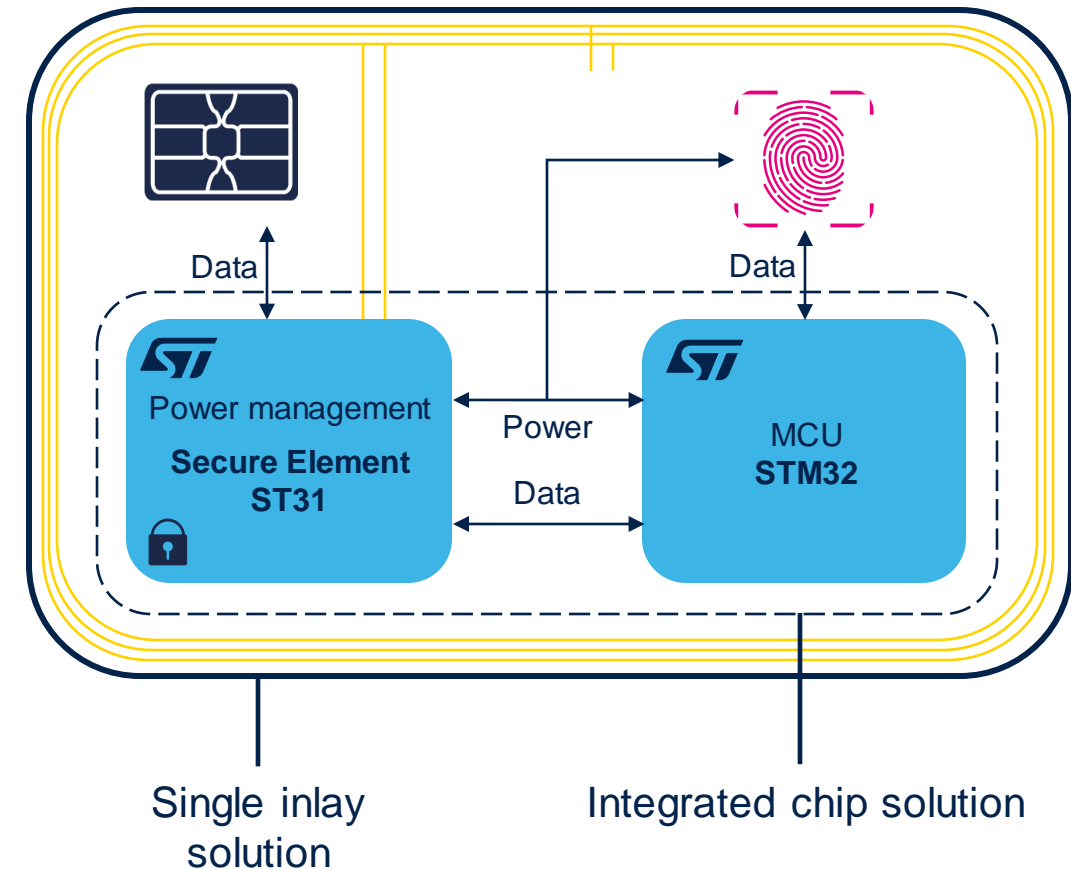
- Size and thickness (ISO 0.76 mm)
- Flexibility (ISO/ CQM compliancy for resistance to mechanical stresses)
- Lamination



Benefits of ST's BSoC solution

A new authentication technology for payment cards embedding the power management system

- ST solution offers:
 - Energy harvesting and Power domain management (battery-less solution without external Bill Of Material)
 - Secure matching solution
- Targeted architecture
 - ST31 master SE (Payment + Matching) with RF harvesting
 - MCU GP (Data extraction) . STM32L4
 - System In Package (330µm SIP)
- Complete system solution with partners (Fingerprint sensors & Packaging providers)



Banking & ID takeaways



- ST31 40nm Flash family enhances product competitiveness & innovative solution
- STPay offers an independent, complete and proven worldwide ST Secure Payment solution
- ST biometric system-on-card solutions in partnership with major sensor makers and packaging providers is at the leading-edge of this technology

Our technology starts with You



Find out more at www.st.com/banking-biometry

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