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BSoC solution

Moving payment security from PIN to fingerprint

More secure and more convenient contactless payments, regardless of transaction amounts

Defined by the ISO and IEC standards, a Biometric System-on-Card (BSoC) is a portable card-size device with increased security, as biometric templates and data are never transferred to an external terminal, but stored in a secure element.

Secure and easy-to-use, this innovative user authentication technology is suitable for PIN-less operations, like contactless payment without any amount limitation.
ST's biometric System-on-card solution is based on STM32L443 microcontroller and the STPay-Topaz-Bio secure payment solution containing the ST31N600 secure element.

KEY FEATURES

- Strong and secure authentication
- Battery-less solution with integrated energy harvesting
- Matching in the secure element
- Reduced BOM compatible with traditional card manufacturing process
- Enhanced end-user experience
  - Faster transactions, increased security
  - Easy to enroll
  - No limit on transaction amounts

ST's Biometric-System-on-Card (BSoC) is based on several components, which are hosted in a dual-interface card. The BSoC embeds a fingerprint sensor, a general-purpose microcontroller that extracts the fingerprint image, and an EMV secure element that stores it after enrollment.
The secure element compares the fingerprint image stored during the enrollment process with the fingerprint of the card user to authenticate and authorize every transaction before it takes place.
This means the data is never transferred externally, protecting user privacy.

Components and architecture

ST supports the development of innovative payment systems by designing BSoC solutions together with partners, which provide the following components:

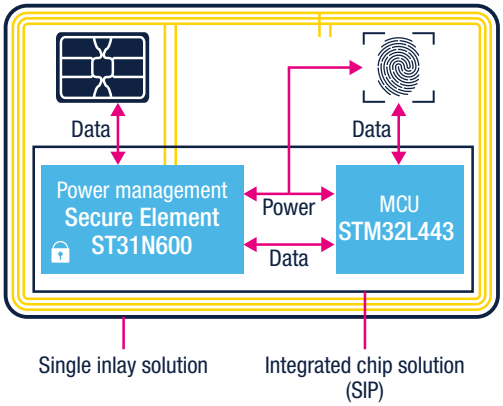
- An EMV module (System-in-Package solution)
- A Prelam including an RF ID1 antenna and enabling connectivity between the EMV module and the sensor module
- A sensor module

Based on STPay-Topaz-Bio, ST's biometric SoC solution integrates secure biometric Java EMV software, which is stored in an ST31N600 secure element. The solution also contains the different libraries necessary for the extraction and matching process.

Power management

Combined with the energy harvesting capability of the ST31N600, which powers the system using an NFC field, ST's low-power components address the demanding energy requirements of biometric SoCs and optimize the bill of materials.

Biometric System-on-Card architecture



How BSoC works