

BIOMETRIC SYSTEM-ON-CARD



A step ahead in security
and privacy



Ensuring secure authentication with Biometric System-on-Cards

Defined by the ISO and IEC standards, a biometric System-on-Card (BSoC) is a portable card size device with increased security, as biometric samples and data are never transferred to an external terminal but stored in a secure element. Secure and easy-to-use, this innovative authentication technology is suitable for PIN-less operations like contactless payment, access control, and health cards which do not require any card-holder verification. ST's biometric SoC solution is based on STPay secure-payment technology, an ST31 secure element and an STM32 microcontroller.

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
 - Optimized transaction performance
 - Easy to enroll

KEY APPLICATIONS

- Payment
- Government ID
- Access Control
- Healthcare
- IoT

A Biometric System-on-Card is based on several components, which are hosted in a dual-interface card. The BSoC embeds a fingerprint sensor, a general-purpose microcontroller to extract the fingerprint image, and an EMV secure element to store it after enrollment.

The secure element compares the stored image with the fingerprint of the current card holder to authenticate a transaction before it takes place.

The data is never transferred externally, protecting user privacy.

Components and architecture

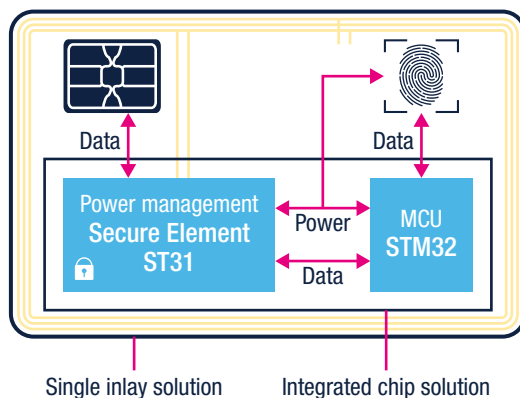
ST supports the development of innovative payment systems by designing BSoC solutions together with partners providing packages and state-of-the-art biometric sensors.

ST's biometric SoC solution integrates a secure biometric Java EMV application which is based on STPay and stored on an ST31 secure element, as well as an STM32L4 microcontroller. The solution also contains the different libraries necessary for the extraction and matching process.

Power Management

Combined with the energy harvesting capability of the ST31 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.

Typical architecture of an ST Biometric System-on-Card



How BsoC works

