

## Biometric-enabled – Java® Card for payment and access control applets development



### Product status link

[STPayTopazBio1J](#)

## Features

### Key hardware features

- Enabling payment and access card applications, supporting biometric card holder authentication
- Based on the STMicroelectronics [ST31N600](#) secure element (SE), which provides:
  - secure access transactions, secure card matching and the storage of biometric templates
  - energy harvesting with no battery or supercapacitor
- Up to 210 Kbytes of user *NVM*
- Solution exclusively compatible with the FPC1323 fingerprint sensor

### Platform

- Java® Card 3.0.5
- GlobalPlatform® card specification v2.3.1 coupled with financial configuration v1.0.2
- *ISO/IEC 7816 T = 0* or *T = 1* contact protocol
- *ISO/IEC 14443 Type A* contactless interface

### Software

- [STPayTopazBio1J](#) OS with specific biometric manager application
- Extraction and matching algorithms based on Fingerprints (*FPC*) libraries

### Hardware

- ST31 product based on a 32-bit Arm® SecurCore® SC000™ *RISC* core
- Advanced 40 nm flash memory technology
- Best-in-class *RF* performance

### Cryptography

- NESCRYPT cryptographic RSA coprocessor
- Enhanced *DES* accelerator (*EDES*)

### Key benefits

- Fingerprint verification performed in the secure element
- Fast-matching verification response platform when used for both contact and contactless modes
- Compatible with different enrollment processes
- Allows the achievement of best user experience with the lowest false acceptance rate (*FAR*) and false rejection rate (*FRR*)

### Certification

- EMVCo
- GlobalPlatform®



## Application

- Biometric payment, access control and ticketing.

## 1 Description

The STPayTopazBio1J is a GlobalPlatform® 2.3.1 Java® Card platform suitable for payments and access control applications. It provides biometric verification capability on top of personal identification number (PIN), making user authentication more convenient yet highly secure. The solution is based on the 40 nm flash memory technology with up to 210 Kbytes of user non-volatile memory.

The STPayTopazBio1J is an implementation exclusively compatible with the FPC1323 fingerprint sensor. The STPay system-on-chip solution is a family of products that come ready for embedding in smartcards. For detailed configuration data, contact your local ST sales office.

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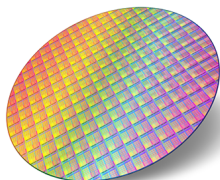
## 2 Certifications



### 3 Delivery forms

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The STPayTopazBio1J is available as sawn wafers.



Sawn wafer

## **4 Development tools and support**

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The STPay ecosystem includes tools, sample scripts and support by local STMicroelectronics engineers who provide assistance in script development, validation and personalization, ensuring optimum flexibility and fast time to market.

## Revision history

**Table 1. Document revision history**

Date	Revision	Changes
06-Mar-2024	1	Initial release.
26-Apr-2024	2	Changed STPay-Topaz-Bio1J into STPayTopazBio1J across all the document. Added corresponding hyperlinks.
22-Jul-2024	3	Updated GlobalPlatform® version from 2.2.1 to 2.3.1 in <a href="#">Section 1: Description</a>

## Glossary

**CPS** EMV® card personalization specification

**DES** Data encryption standard

**EDES** Enhanced data encryption standard

**FAR** False acceptance rate

**FPC** Fingerprint Cards AB (Fingerprints) – a biometrics company

**FRR** False rejection rate

**IEC** International Electrotechnical Commission

**ISO** Relative to the ISO/IEC 7816 asynchronous receiver transmitter.

**NESCRYPT** Next-step cryptographic processor

**NVM** Nonvolatile memory

**OS** Operating system

**PIN** Personal identification number

**RF** Radio frequency

**RISC** Reduced instruction set computing (CPU design strategy)

**RSA** Public-key cryptosystem (created by Ron Rivest, Adi Shamir and Leonard Adleman)

**SE** Secure element

**VBSS** Visa® Biometric Sensor-on-Card Specification

**VCPS** Visa® Contactless Payment Specification

**VIS** Visa® Integrated Circuit Card Specification

**VSDC** VISA® smart debit/credit



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