STPay-Topaz-2

Data brief

ST Payment Secure and Flexible Solution – Java® Card platform

Product status link
STPay-Topaz-2

Features

- 34 nm flash technology
- Java® Card platform
- Up to 110 Kbytes of user NVM
- Large offer of certified payment applications including: VISA®, MasterCard®, *Interac*®, Discover®, AMEX®, JCB®, RuPay® and BANCOMAT® (certifications expected mid 2025).
- Applet selection features for superior stock management, card personalization and issuance flexibility.

Platform

- Java® Card 3.0.5 classic operating system
- GlobalPlatform® 2.3.1 with Common Implementation Configuration version 1.0
- EMVCo open platform (certification expected mid 2025)
- Supports SCP02 and SCP03 secure channel
- CPS-compliant V1.1
- ISO/IEC 7816 T = 0 or T = 1 contact protocol
- ISO/IEC 14443 Type A contactless interface
- Support of secondary security domain

Hardware

- ST31R480 product based on a 32-bit Arm® SecurCore® SC000™ RISC core
- Advanced 34 nm flash technology
- Best-in-class RF performance

Cryptography

- NESCRYPT cryptographic RSA and ECC coprocessor
- Advanced Encryption System (AES)

Personalization

- RF tuning capability to match various module and antenna technologies
- Enhanced mode for very fast card personalization
- EMV® CPS v2 compliant
- VISA® smart debit/credit (VSDC) Personalization Specification v2.0
- M/Chip® Advance 1.2.3 Common Personalization Specification

Application

- MasterCard® M/Chip® Advance 1.2.3
  - Data sharing single account configuration 2
  - PIN sharing
- MasterCard® Ecos version 2.2:
  - Data sharing single account options
  - PIN sharing
- VISA® VSDC 2.8.1g1
- VISA® VSDC 2.9.2
- VISA® VSDC 3.0
- Interac® Flash 1.7
- Discover® D-PAS Connect 2.1
- AMEX® AEIPS 4.5, XP 4.1
- JCB® D.1.2
- RuPay® qSPARC 2.0.2
- BANCOMAT® v1.7

1 Description

The STPay-Topaz-2 is a GlobalPlatform® 2.3.1 Java® Card platform for payment and loyalty applications, based on the 34 nm flash technology with up to 110 Kbytes of user non-volatile memory.

The STPay-Topaz-2 can be configured to support various applications, including VISA® 2.8.1g1 or VSDC 2.9.2, MasterCard® M/Chip® Advance 1.2.3 and Discover® D-PAS Connect 2.1. Additionally, it supports *Interac*® Flash 1.7, AMEX® AEIPS4.5, JCB® D.1.2, RuPay® qSPARC 2.0.2 and BANCOMAT® 1.7 EMV® payment applications. The product is also targeting to support VISA® 3.0, MasterCard® Ecos 2.2 payment applications which are compliant with latest EMVCo kernel C-8 specifications.

The STPay-Topaz-2 seamlessly builds upon the renowned previous generation Topaz-1, allowing card manufacturers and personalization bureaus to leverage and enhance their personalization flow established and validated with the first generation. Moreover, STPay-Topaz-2 extends the card configuration capability allowing the customer to quickly set the card according to their markets. Such flexibility is available up until the card is branded, personalized and issued to the bank. This is possible thanks to:

- Up to six different payment applets that can already be preloaded in the product
- The capability of embedding any brand new applet or to update an existing one based on the needs.

While being able to meet issuing banks demands is a key success factor, being also able to accommodate various card body, module and antenna technologies on its production line is a real challenge. As a response, STPay-Topaz-2 provides the possibility to tune the RF characteristics to ensure best RF performance of the card.

The STPay-Topaz-2 is also available as a Java virtual machine (JVM) platform, providing 190 Kbytes of non-volatile memory for customer applets.

The STPay system-on-chip solution is a product family that comes ready to embed in the smartcards and loaded with payment applications that run on certified Java® Card platforms. They meet all required security and payment-scheme certifications.

For detailed configuration data, contact your local ST sales office.

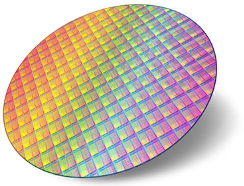
Note: Arm is a registered trademark of Arm Limited (or its subsidiaries) in the US and/or elsewhere.

Note: Java is a registered trademark of Oracle and/or its affiliates.

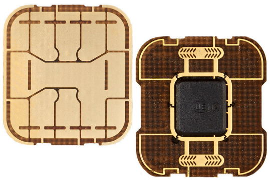
2 Certifications

3 Delivery forms

The STPay-Topaz-2 is available as sawn wafers or micromodules, in dual-interface configuration qualified with a wide range of industry-standard inlay and antenna technologies for easy integration in plastic cards.



Sawn wafer



D75/D77

Dual-interface gold and silver micromodules

D7G

D7S

Dual-interface gold and silver micromodules

4 Development tools and support

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-Feb-2025	1	Initial release.

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