Sm@rtCafé® Expert

Java-Based, Open-Platform Card and Token Operating System

Giesecke & Devrient

Creating Confidence.

StarSign® Sm@rtCafé® Expert: Interoperability, Security, Reliability

## Commitment to open standards to protect your investment

As a global group, Giesecke & Devrient (G&D) has a 150-year history of developing security technologies and has been playing a major role in the standardization of these technologies. Sm@rtCafé® Expert cards are G&D's implementation of the current Java Card™ and Global Platform specifications (for details on Sm@rtCafé® Expert, see overview on page 3). They are designed for all industries and enable services to be combined for various markets such as banking, industry, and government – on a single card. All our Sm@rtCafé® Expert products include a complete implementation of actual Global Platform specifications.

In fact, G&D is represented on GlobalPlatform's Board of Directors and continues to work hard to establish and promote these interoperability specifications industry-wide. Sm@rtCafé® Expert also supports the full Java Card™ API and has been thoroughly tested with the Test Suite provided by Sun®. In addition, it is fully compliant with relevant ISO standards.

Cutting-edge security features

Sm@rtCafé® Expert's extensive range of state-of-the-art security algorithms and functions ensures that you don't need to set the highest levels for your applications – they are already there. The implementation of the firewall mechanisms on Sm@rtCafé® Expert cards goes beyond common implementations and ensures a reliable separation of the different applets with their assigned data (see graph- ic "GlobalPlatform Security Architecture"). This enables the detection of fraudulent code that illicitly tries to access data or objects. In fact, G&D is recognized for going further on security levels. With outstanding levels of customer satisfaction, we're a global leader and premier brand in security technologies. A brand our customers trust.
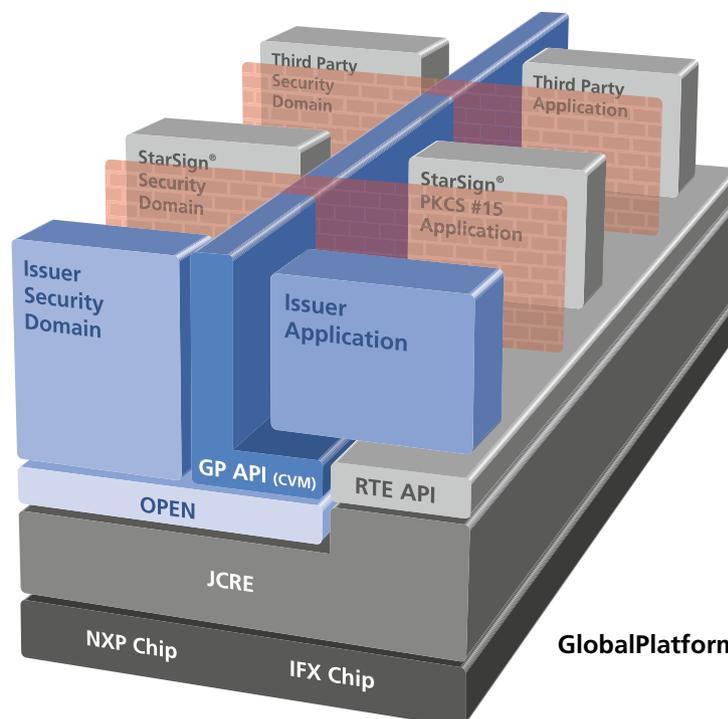
GlobalPlatform Security Architecture

Sm@rtCafé® Expert Operating Systems

Operating systems from other manufacturers are also supported

	Sm@rtCafé® Expert 3.2			Sm@rtCafé® Expert 5.0		Sm@rtCafé® Expert 6.0		
Hardware **Chip** **EEPROM** **Interface**	NXP P5CC073 72 KB T=0/1	NXP P5CD080 80 KB Dual interface (T=CL) Contact-based (T=1/0)	NXP P5CD144 144 KB	NXP P5CD080 80 KB Dual interface (T=CL) Contact-based (T=1/0)	NXP P5CD144 144 KB	NXP P5CC081 80 KB Contact-based (T=0 / T=1)	NXP P5CD081 80 KB Dual interface (T=CL Type A) Contact-based (T=0 / T=1)	NXP P5CD145 144 KB
Cryptography	2048 bit RSA®, AES 256 bit, SHA-256			2048 bit RSA®, AES 256 bit, SHA-256, ECDSA, ECDH 256 bit		2048 bit RSA, AES 256 bit, DSA up to 1024 bit Triple-DES 3-key, ECDSA up to 256 bit, ECDH up to 256 bit, SHA-224, SHA-256, SHA-384, **SHA-512**, RNG: according to NIST SP 800-90		
Certifications Chip Operating system	Common Criteria EAL 5+ FIPS 140-2 Level 3			Common Criteria EAL 5+ Common Criteria EAL 4+		Common Criteria EAL 5+ FIPS 140-2 Level 3		
Standards	- Java Card™ 2.2.1 - GlobalPlatform 2.1.1 - ISO® 7816, ISO® 14443A			- Java Card™ 2.2.2 - GlobalPlatform 2.1.1 - ISO® 7816, ISO® 14443A		- Java Card™ 3.0.1 Classic - GlobalPlatform 2.1.1 + Amendment D (SCP03) - ISO® 7816, ISO® 14443A		
Available applets / applications	- StarSign® PKCS #15 applet - StarSign® Security Domain Applet - Further applets on request - Customer-specific applications			- StarSign® PKCS #15 applet - StarSign® Security Domain Applet - Further applets on request - Customer-specific applications		- StarSign® - PKCS#11 - Further applets on request		
Additional features	- Multiple security domains - Multiple DAP (DES and RSA) - Delegated management - RMI			- Multiple security domains - Multiple DAP (DES and RSA) - Delegated management - RMI		- Multiple security domains - Multiple DAP (DES and RSA) - Delegated management - RMI		

Getting the most out of Sm@rtCafé® Expert

If you're interested in developing your own applications, we provide the Sm@rtCafé® Professional Toolkit.

You can use this as a complete development environment to develop, test, integrate, and customize Java Card™ applications with our Sm@rtCafé® Expert cards and tokens.

Meeting your needs with a choice of smart card chips

Sm@rtCafé® Expert has been specially designed as a platform that supports smart card integrated circuits (ICs) from multiple manufacturers. This flexibility enables you to select the IC that fulfills your price and performance criteria, while giving you a wider choice of interface (contact-based, contactless, dual interface, or USB) and of EEPROM memory size.

Java
POWERED

Reliability and Proven Technology

The confidence that comes with experience

G&D has been making Java™-based smart cards and tokens since 1998 and literally tens of millions of G&D's Sm@rtCafé® Expert cards are used every day, around the globe. They are even being used in the world's largest Java Card™ deployment – Taiwan's Health Card project, with no less than 24 million cards issued. Tried and tested technologies, advanced security, and strict compliance with open specifications – with Sm@rtCafé® Expert, reliability comes as standard.

Optional features

Along with our robust security, you'll find a rich set of features that enable you to tailor Sm@rtCafé® Expert to your exact needs. Here's a look at some of the advanced options available:

- Multiple security domains to enclose each application in its own security structure

- Delegated management to ensure that each application is managed by its provider

- Data Authentication Pattern (DAP) verification to only accept applets digitally signed by specified vendors

StarSign®: The broadest e-Identity token solution available

Sm@rtCafé® Expert is one of the operating systems underpinning StarSign®, the most complete range of e-Identity tokens, smart cards, and card readers on the market today.

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Sm@rtCafé® Expert: Benefits at a glance

- **Easy integration and interoperability:**
  Support for open standards with all GlobalPlatform specs, Sun Java card™ and ISO®

- **Increased efficiency:**
  Applets from different vendors run on one card (Write Once Run Anywhere™)

- **Easy updates, low issuance costs:**
  Extend/Upgrade functionality on cards in the field with applets

- **Time savings:**
  Efficient and flexible architecture for application administration

- **Risk minimization:**
  State-of-the-art security features prohibit unauthorized access

- **Flexibility:**
  Applets can easily be added to the card – whether customer-developed or from a third party