

Sm@rtCafé® Expert 3.x

Java Card™ solutions for maximum flexibility





Built on the full power of Java™ combined with the highest flexibility



Overview

The Sm@rtCafé® Expert 3.x cards are Giesecke & Devrient's implementation of the current Java Card™ and GlobalPlatform specifications. They are designed for all market segments and allow the combination of services for various markets such as banking, industry, and government on a single card.

Specifications

The Sm@rtCafé® Expert 3.x cards are proven to be compliant with the industry standards as defined by Sun Java Card™ specifications. The implementations have passed the Test Suite provided by Sun (Java Card 2.2.1 compatibility kit, TCK).

Furthermore, the cards adhere to the specifications published by GlobalPlatform, ISO, and EMV. These are the pre-conditions for seamless integration into existing smart card infrastructures and systems.

Smooth integration of smart cards into projects, from cost-critical loyalty schemes to high-end multi-application and Public Key Infrastructures (PKI), is now possible.

Security

The greatest emphasis was placed on the security features of the card. The implementations provide a wealth of security algorithms and functions and remove the burden of implementing the functions in applications with the highest security level.

The realization of the fire-wall mechanisms of the Sm@rtCafé® Expert 3.x cards goes beyond common implementations and ensures a reliable separation of the applets and assigned data. Fraudulent code which illegally tries to address data or objects will be detected.

Features

The Sm@rtCafé® Expert 3.x implementations support the full Java Card™ API as well as the latest GlobalPlatform API. Optional features like multiple security domains, delegated management, and DAP verification are available on most Sm@rtCafé® Expert 3.x masks.

These features allow additional tailoring of the cards according to the individual needs of each customer and enable additional sales and marketing potential.

All available masks support DES, 3-DES and hash algorithms such as SHA-1 and RIPEMD-160. On hardware platforms, which include an RSA cryptographic co-processor, RSA support up to 2048 bits with on-card key generation is provided.

With the optional dual interface (contact and contactless) and the MIFARE® emulation, the Sm@rtCafé® Expert 3.x connects the worlds of banking, industry, government, and transport, generating outstanding opportunities for all customers.

Tools and add-ons to support a head start for all major card applications

Tools

G&D provides the full tool chain, from applet development and debugging to complete EMV and PKI simulations.

Preloaded applications

All Sm@rtCafé® Expert 3.x cards come with several applications preloaded into ROM, depending on the target market. The masks support the EMV schemes (Visa or MasterCard) as well as additional applications for banking, industry, and government such as:

- Token-based access (OTP)
- Loyalty
- PKI

This means a substantial advantage as the need for precious EEPROM space to load these applets is reduced significantly. Thus, the functionality can be provided on a smaller chip, lowering the overall cost of the product.

Customized masks

Depending on the amount of free ROM space (according to the hardware platform used), any number of applications can be integrated into the ROM mask, yielding a special customized version.

G&D offers this service to every customer to meet the specific requirements of certain markets.

This is the method of choice for cost-effective solutions, especially for mass-volume rollouts.

Services

With its commitment to customer needs, G&D provides the following services for Sm@rtCafé® Expert 3.x cards, keeping the required load, install, and personalization efforts to an absolute minimum:

- Preloading of applets into EEPROM if no custom mask is required
- Installation of applets
- Pre-personalization of applets
- Full personalization solutions

The flexibility of Sm@rtCafé® Expert 3.x is based on state-of-the-art characteristics





Success stories

Giesecke & Devrient (G&D) has a long-standing experience in the implementation of operating systems based on Java Card™ technology. Starting in 1998, when G&D received the Frost & Sullivan “Market Engineering Product Innovation Award”, customers around the world have come to rely on G&D’s outstanding Java Card™ implementations and security standards.

Sm@rtCafé® Expert cards were chosen for the world’s largest Java Card™ project: over 24 million cards were delivered for the Health Card project in Taiwan. Numerous other governments, industries, and banking institutions trust in Sm@rtCafé® Expert cards, which give them a competitive advantage.

Sm@rtcafé® Expert 3.x cards are certified to operate with the PKI applet and middleware from A.E.T. Europe B.V. and hence are part of G&D’s StarSign® Token product family. Thus, Sm@rtCafé® Expert 3.x can be used for IT security applications, such as strong authentication, encryption, and electronic signature on various platforms.

About G&D

G&D, based in Munich, Germany, is an international technology group with subsidiaries and joint ventures throughout the world.

G&D is a technology leader in smart cards and a solutions provider in the fields of telecommunications, electronic payments, transport, health, ID, and Internet security.

Any information provided in this document is given as general information and does not imply any obligation on the part of G&D.

Key features

Specifications

- GlobalPlatform 2.1.1
- Java Card™ 2.2.1
- EMV 2000
- ISO 7816

Advanced specification features

- Delegated management
- Multiple security domains
- Extradition

Security

- RSA up to 2048 bits
- On-card key generation
- DES, 3-DES
- Hash algorithms
- DAP verification
- High-end firewall for applet separation
- Resistant against fraudulent code

Interfaces

- T=0 and T=1
- PTS and PPS
- Up to 115 kBaud
- Dual interface (T=CL, ISO 14443 type A)

Memory management

- Garbage collection
- Defragmentation

Hardware

- Available on various hardware platforms: 8 and 16 bit controllers
- 16, 32 and 64 kByte EEPROM

Security certifications

MIFARE® emulation

Giesecke & Devrient GmbH
Prinzregentenstrasse 159
P.O. Box 80 07 29
81607 Munich
GERMANY

Phone: +49 (89) 41 19-21 32
Fax: +49 (89) 41 19-11 50

www.gi-de.com
smartcafe.info@de.gi-de.com

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