Infineon Chip Card & Security ICs Portfolio

Security for the connected world

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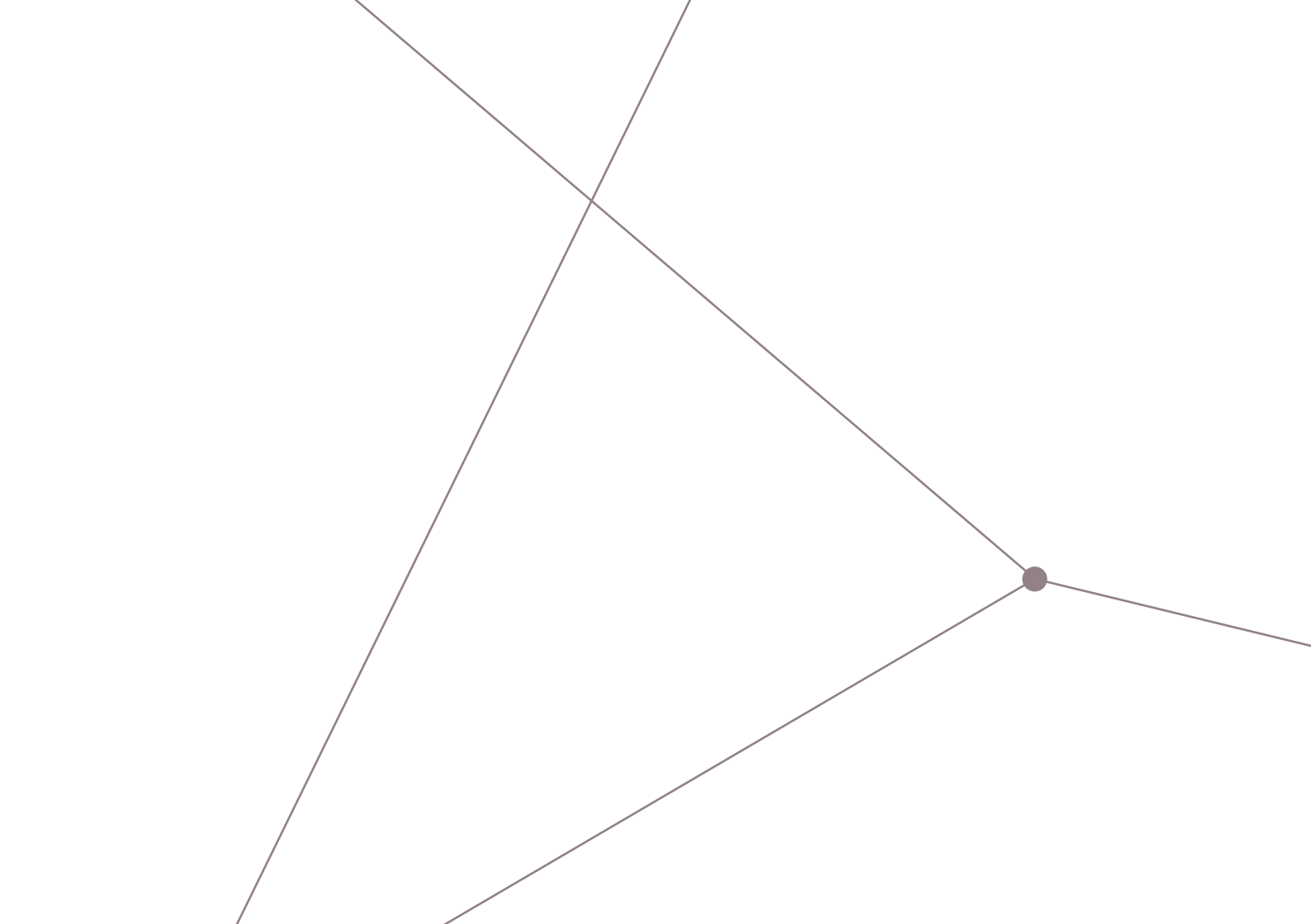

Security for the connected world

In an increasingly connected world, securing interaction and communication between people, electronic devices and infrastructures has become a number one priority. As the leading provider of security solutions, Infineon offers tailored, ready-to-use security solutions serving a wide range of applications from smart cards to new, emerging use cases. Infineon is the partner of choice for countless customers across multiple markets thanks to its outstanding security expertise based on almost 30 years of experience, a steady stream of customer-driven technology innovations, in-depth and holistic system competence and the broadest security solution portfolio in the market.

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Technologies

Integrity Guard

The smartest security concept in the industry
Rely on Integrity Guard's highly sophisticated digital security architecture, including a fully encrypted data path and self-checking dual CPU core

Boosted NFC

NFC security solution for smallest form factors
Deliver mobile payment solutions with ultra-low power consumption, small PCB footprints and extraordinary contactless performance

SOLID FLASH™

Flexible and robust memory built on a comprehensive security concept
Master your security applications quickly with SOLID FLASH™ – a flexible, non-volatile memory technology

Mega Memory

Unrivalled total memory sizes
Enable your next-generation eGovernment documents such as ePassports and multi-application eID cards based on LDS 2.0

Coil on Module

Simplified dual-interface card design and manufacturing
Get to market significantly faster than the competition with our award-winning Coil on Module package technology

VHBR

The fastest contactless performance
Accelerate your applications with support for Very High Bit Rates (VHBR) of up to 6.8 Mbit/s

Open standard & trademark solutions

CIPURSE™ – Open security standard

- Is built on proven standards such as ISO/IEC 7816, AES-128 and ISO/IEC 14443-4
- Provides a single, consistent set of security, personalization, administration and lifecycle management functions
- Includes advanced security mechanisms such as unique cryptographic protocol for inherent protection against differential power analysis (DPA) and differential fault attacks (DFA)
- Offers three distinct development profiles enabling a complete range of products spanning tickets, cards and mobile phones

CIPURSE™ is a trademark of the OSPT Alliance

SECORA™ Pay

SECORA™ Pay is a new family of one-stop security solutions offering card issuers, card manufacturers and personalizers a cost-effective route to fast and agile implementation. Based on a solid chip platform with an integrated Java Card operating system, SECORA™ Pay is highly secure and reliable, also delivering the best price-performance ratio.

SECORA™ Pay enables safe, secure, efficient and streamlined migration to the EMV standard. This solution is designed for fast and efficient payment chip card production. The SECORA™ Pay portfolio comprises the Pay S and Pay X variants.

SECORA™ Pay S is a ready-to-use chip solution optimized for standard payment cards under global schemes such as Visa and Mastercard.

SECORA™ Pay X is a flexible platform to address multi-application payment cards and to address domestic payment schemes. Pay X is an enablement platform supporting EMV-based payment schemes and project-specific requirements in conjunction with Infineon's ready-to-use reference solutions for Visa, Mastercard and CIPURSE™.

OPTIGA™

The **OPTIGA™** security solution family is designed for easy integration into embedded systems to protect the confidentiality, integrity and authenticity of information and devices. These hardware-based security solutions scale from basic authentication chips to sophisticated implementations.

OPTIGA™ Trust includes turnkey products for smaller platforms as well as programmable solutions, supporting individual needs in the field of embedded authentication and brand protection as well as a host of other security applications.

OPTIGA™ TPM (Trusted Platform Module) offers a broad portfolio of standardized security controllers to protect the integrity and authenticity of embedded devices and systems. OPTIGA™ TPM products comply with the Trusted Computing Group (TCG) standards and are ideal for embedded PC, mobile and computing applications.

Contents

Payment 7
- Dual-interface & contactless security controller 7
- Contact-based security controller 8
- SECORA™ Pay 9

Mobile Communication 10
- SIM & UICCs 10

SIM/eSIM 12
- eUICC automotive (V2X) 12
- eUICC industrial (M2M) 14

Near-Field Communication 16
- SWP UICCs 16
- Embedded secure elements (eSE) 16
- Boosted NFC secure elements 18
- NFC tags 20

Government Identification 21
- Dual-interface & contactless security controller 21
- Contact-based security controller 23
- Java Card™ platform on SLE 77 25
- Java Card™ platform on SLE 78 25
- Java Card™ platform on SLE 78 with applet 26
- Native generic ID platform on SLE 78 29

USB Tokens 30
- USB tokens (16-bit) 30
- USB tokens (32-bit) 32

Transport Ticketing 34
- Security products with integrated CIPURSE™ functionality 34
- Contactless security controller 35
- Contactless memory-based card and ticket products 36
- CIPURSE™ components for terminals 37

Authentication 38
- Turnkey solution 38
- Contact-based security controller 39
- Pay TV 39

Trusted Computing 40
- OPTIGA™ trusted platform module (TPM) 40

Object Identification 44
- my-d™ vicinity plain 44
- my-d™ vicinity secure 44

Modules 46
- Contact-based controller modules 46
- Contactless controller & memory modules 48
- Dual-interface modules 48
- SMD packages 50

Preassembly 53
- Preassembly 53

Payment

	Dual-interface & contactless security controller			
Product name [1]	**SLE 77CLFXxxxyP** SOLID FLASH™ Coil on Module	**SLC 32PDzxxx** SOLID FLASH™ Coil on Module	**SLC 32PMzxxx** new SOLID FLASH™ Coil on Module	**SLC 52WMzxxx** new Integrity Guard SOLID FLASH™
Product description	Dual-interface security cryptocontroller for traditional payment use cases	Dual-interface security cryptocontroller for traditional payment use cases	Dual-interface security cryptocontroller for multi-application and wearables payment use cases supporting multi-interface	Active wearable boosted NFC
Interfaces	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, optimized for small antenna sizes, optional Mifare-compatible	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, optimized for small antenna sizes, optional Mifare-compatible	ISO 7816 / I2C, ISO 14443 A/B, ISO 18092 passive mode, optimized for small antenna sizes, optional Mifare-compatible	ISO 7816 / I2C, ISO 14443 A/B, ISO 18092 passive mode, optimized for small antenna sizes, optional Mifare-compatible
NVM	136, 156, 184, 200, 240 kByte	180, 212, 228, 268, 300, 348 kByte	400, 448 kByte	448, 800 kByte
RAM	6 kByte	10 kByte	12 kByte	12, 16 kByte
CPU	16-bit	16-bit	16-bit	16-bit
Symmetrical cryptography	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES
Asymmetrical cryptography	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit
Ambient temperature	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C
Delivery forms	Coil on Module, sawn wafer, 6/8 pin dual-interface modules and contactless modules	Coil on Module, sawn wafer, 6/8 pin dual-interface modules and contactless modules	Coil on Module, sawn wafer, bumped wafer, 6/8 pin dual-interface modules and contactless modules	Sawn wafer, USON-10-2, UQFN-32
Certifications	CC EAL5+ high, CUP, EMVCo	CC EAL6+ high, CUP, EMVCo	CC EAL6+ high, EMVCo	CC EAL6+ high, EMVCo

[1] Please note that xxx stands for NVM size, y – input capacity of derivatives, z – different interfaces e.g. Mifare-compatible

Payment

	Contact-based security controller		
Product name [1]	**SLE 77CFXxxx0P** SOLID FLASH™	**SLC 32PCAxxx** SOLID FLASH™	**SLE 77CFxxx4P** SOLID FLASH™
Product description	Contact-based security cryptocontroller	Contact-based security cryptocontroller	Contact-based security controller
Interfaces	ISO 7816	ISO 7816	ISO 7816
NVM	136, 156, 184, 200, 240 kByte	160, 180, 212, 228, 268, 300 kByte	80, 100, 120 kByte
RAM	6 kByte	8 kByte	4 kByte
CPU	16-bit	16-bit	16-bit
Symmetrical cryptography	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES, DES
Asymmetrical cryptography	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit	–
Ambient temperature	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C
Delivery forms	Sawn wafer, 6/8 contact-based modules (MFC6.6, MFC6.8)	Sawn wafer, 6/8 contact-based modules (MFC6.6, MFC6.8)	Sawn wafer, 6/8 contact-based modules (MFC6.6, MFC6.8)
Certifications	CC EAL5+ high, EMVCo	CC EAL6+ high, EMVCo	CC EAL5+ high, EMVCo

[1] Please note that xxx stands for NVM size, y – input capacity of derivatives, z – different interfaces e.g. Mifare-compatible

	SECORA™ Pay [2]	
Product variants	**SECORA™ Pay S** new SOLID FLASH™ Coil on Module	**SECORA™ Pay X** new SOLID FLASH™ Coil on Module
Product description	Ready-to-use and optimized chip solution portfolio for standard payment cards for global schemes such as Visa and Mastercard.	Flexible platform to address multi-application payment cards and domestic schemes. Pay X is an enablement platform giving the flexibility to address EMV-based payment schemes and local content in combination with Infineon's ready-to-use reference solutions for Visa, Mastercard and CIPURSE™.
Operating system	Java Card S GlobalPlatform 2.2.1	Java Card 3.0.4 GlobalPlatform 2.2.1
Interfaces	ISO 7816, ISO 14443	ISO 7816, ISO 14443
Cryptography	SDA/DDA/CDA (RSA, 3DES, SHA1, AES)	SDA/DDA/CDA (RSA, 3DES, SHA1, AES)
Typical applications	Standard payment cards	Multi-application payment cards

[2] For further information on SECORA™ Pay, available products and applets, available configurations, delivery forms, sample availability, support, tools and conditions, please contact your Infineon Technologies sales representative.

Mobile Communication

	SIM & UICCs			
Product name [3]	**SLC 14MCOxxx**	**SLC 14MCOxxx**	**SLE 76CF2564P**	**SLE 76CFxxx2P**
Product description	32-bit SIM-card controller	32-bit SIM-card controller	16-bit SIM-card controller	16-bit SIM-card controller
Interfaces	ISO 7816	ISO 7816	ISO 7816	ISO 7816
NVM	256, 288, 312, 340 kByte	384, 420, 480 kByte	256 kByte	296, 320, 344, 360 kByte
RAM	10 kByte	12 kByte	9 kByte	9 kByte
CPU	32-bit	32-bit	16-bit	16-bit
Symmetrical cryptography	–	–	–	–
Asymmetrical cryptography	–	–	–	–
Ambient temperature	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C
Delivery forms	FCOS™ module S-MFC5.4 (4FF), sawn wafer	FCOS™ module S-MFC5.4 (4FF), sawn wafer	FCOS™ module S-MFC5.4 (4FF), sawn wafer	FCOS™ module S-MFC5.4 (4FF), sawn wafer
Typical applications	SIM and UICC for mobile communication	SIM and UICC for mobile communication	SIM and UICC for mobile communication	SIM and UICC for mobile communication
Certifications	–	–	–	–

[3] Please note that xxx in product names stands for NVM size

SLE 76CF4002P	SLE 76CFxxx0P	SLE 97CNFXxxx0PE NFC Optimized SOLID FLASH™	SLE 97CUNFXxxx0PE SOLID FLASH™	SLE 97CUNFXxxx0PE SOLID FLASH™
16-bit SIM-card controller	16-bit SIM-card controller	32-bit SWP SIM-card security cryptocontroller	32-bit USB and SWP SIM-card security cryptocontroller	32-bit USB and SWP SIM-card security cryptocontroller
ISO 7816	ISO 7816	ISO 7816, Mifare-compatible, SWP	ISO 7816, Mifare-compatible, SWP, USB	ISO 7816, Mifare-compatible, SWP, USB
400 kByte	448, 504 kByte	600, 800 kByte, 1, 1.3, 1.5 MByte	800 kByte, 1 MByte	1.3, 1.5 MByte
12 kByte	12 kByte	32 kByte	32 kByte	32 kByte
16-bit	16-bit	32-bit	32-bit	32-bit
–	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES
–	–	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit
-25°C to +85°C	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C
FCOS™ module S-MFC5.4 (4FF), sawn wafer	FCOS™ module S-MFC5.4 (4FF), sawn wafer	CSP, FCOS™ module, SMD, sawn wafer, wirebond module	CSP, FCOS™ module, SMD, sawn wafer, wirebond module	CSP, FCOS™ module, S-MFC5.4, S-MFC5.6, S-MFC5.8-8-1, sawn wafer, wirebond module
SIM and UICC for mobile communication	SIM and UICC for mobile communication	SIM and UICC for mobile communication, SWP UICC for NFC	SIM and UICC for mobile communication	SIM and UICC for mobile communication
–	–	CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo

SIM/eSIM/V2X Automotive

	eUICC automotive (V2X)			
Product name [3]	**SLI 76CF3600P** SOLID FLASH™	**SLI 76CF5120P** SOLID FLASH™	**SLI 97CFxxx0PE** SOLID FLASH™	**SLI 97CFXxxx0PE** SOLID FLASH™
Product description	Security cryptocontroller, optimized for automotive applications (SIM)	Security cryptocontroller, optimized for automotive applications (SIM)	Security controller, optimized for automotive applications (eSIM)	Security cryptocontroller, optimized for automotive applications (eSIM)
Interfaces	ISO 7816	ISO 7816	ISO 7816	ISO 7816
NVM	360 kByte	504 kByte	608, 800 kByte, 1 MByte	608, 800 kByte, 1 MByte
RAM	8 kByte	12 kByte	32 kByte	32 kByte
CPU	16-bit	16-bit	32-bit	32-bit
Symmetrical cryptography	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES
Asymmetrical cryptography	–	–	–	ECC up to 521-bit, RSA up to 4096-bit
Ambient temperature	-40°C to +105°C	-40°C to +105°C	-40°C to +105°C	-40°C to +105°C
Delivery forms	MFF2 (VQFN-8-4)	MFF2 (VQFN-8-4)	MFF2 (VQFN-8-4)	MFF2 (VQFN-8-4)
Typical applications	–	–	–	–
Certifications	–	–	CC EAL5+ high	CC EAL5+ high

[3] Please note that xxx in product names stands for NVM size

SLI 97CNFxxx0PE SOLID FLASH™	**SLI 97CNFXxxx0PE** SOLID FLASH™	**SLI 97CSFX1M00PE** SOLID FLASH™	**SLI 97CSINFXxxx0PE** SOLID FLASH™
Security controller, optimized for automotive applications (eSIM)	Security cryptocontroller, optimized for automotive applications (eSIM)	Security cryptocontroller, optimized for automotive applications (eSIM, V2X)	Security cryptocontroller, optimized for automotive applications (eSIM, V2X)
ISO 7816, SWP	ISO 7816, SWP	ISO 7816, SPI	I2C, ISO 7816, SPI, SWP
608, 800 kByte, 1 MByte	608, 800 kByte, 1 MByte	1 MByte	800 kByte, 1 MByte
32 kByte	32 kByte	32 kByte	32 kByte
32-bit	32-bit	32-bit	32-bit
AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES
RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit
-40°C to +105°C	-40°C to +105°C	-40°C to +105°C	-40°C to +105°C
MFF2 (VQFN-8-4)	MFF2 (VQFN-8-4)	VQFN-32-13	VQFN-32-13
–	–	–	–
CC EAL5+ high	CC EAL5+ high	CC EAL5+ high	CC EAL5+ high

SIM/eSIM Industrial

	eUICC industrial (M2M)			
Product name [3]	**SLM 76CFxxx1P** SOLID FLASH™	**SLM 76CF5120P** SOLID FLASH™	**SLM 97CFxxx0PE** SOLID FLASH™	**SLM 97CFXxxx0PE** SOLID FLASH™
Product description	Security controller, optimized for industrial applications (SIM)	Security controller, optimized for industrial applications (SIM)	Security controller, optimized for industrial applications (eSIM)	Security cryptocontroller, optimized for industrial applications (eSIM)
Interfaces	ISO 7816	ISO 7816	ISO 7816	ISO 7816
NVM	256, 320, 360 kByte	504 kByte	608, 800 kByte, 1 MByte	608, 800 kByte, 1 MByte
RAM	8 kByte	12 kByte	32 kByte	32 kByte
CPU	16-bit	16-bit	32-bit	32-bit
Symmetrical cryptography	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	–	AES up to 256-bit, DES, 3DES
Asymmetrical cryptography	–	–	–	ECC up to 521-bit, RSA up to 4096-bit
Ambient temperature	-40°C to +105°C	-40°C to +105°C	-40°C to +105°C	-40°C to +105°C
Delivery forms	MFF2, P-M2M4.7, sawn wafer	MFF2, P-M2M4.7, sawn wafer	MFF2, P-M2M4.7, sawn wafer, WF WLB-16	MFF2, P-M2M4.7, sawn wafer, WF WLB-16
Typical applications	–	–	–	–
Certifications	–	–	CC EAL5+ high	CC EAL5+ high

[3] Please note that xxx in product names stands for NVM size

SLM 97CNFxxx0PE SOLID FLASH™	**SLM 97CNFXxxx0PE** SOLID FLASH™	**SLM 97CSINFXxxx0PE** SOLID FLASH™
Security controller, optimized for industrial applications (eSIM, NFC enabled)	Security cryptocontroller, optimized for industrial applications (eSIM, NFC enabled)	Security cryptocontroller, optimized for industrial applications
ISO 7816, SWP	ISO 7816, SWP	I2C, ISO 7816, SPI, SWP
608, 800 kByte, 1 MByte	608, 800, 1 MByte	800 kByte, 1 MByte
32 kByte	32 kByte	32 kByte
32-bit	32-bit	32-bit
–	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES
–	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit
-40°C to +105°C	-40°C to +105°C	-40°C to +105°C
MFF2, P-M2M4.7, sawn wafer, WF WLB-16	MFF4, P-M2M4.7, sawn wafer, WF WLB-16	VQFN-32-13
–	–	–
CC EAL5+ high	CC EAL5+ high	CC EAL5+ high

Near-Field Communication

	SWP UICCs		Embedded secure elements (eSE)	
Product name [3]	**SLE 97CUNFXxxx0PE** SOLID FLASH™	**SLE 97CUNFXxxx0PE** SOLID FLASH™	**SLE 97CNFX1M04PE** NFC Optimized SOLID FLASH™	**SLE 97CNFX1M54PE** NFC Optimized SOLID FLASH™
Product description	32-bit USB and SWP SIM-card security cryptocontroller	32-bit USB and SWP SIM-card security cryptocontroller	32-bit SWP security cryptocontroller for embedded secure element	32-bit SWP security cryptocontroller for embedded secure element
Interfaces	ISO 7816, Mifare-compatible, SWP, USB	ISO 7816, Mifare-compatible, SWP, USB	ISO 7816, Mifare-compatible, SWP	ISO 7816, Mifare-compatible, SWP
NVM	800 kByte, 1 MByte	1.3, 1.5 MByte	1 MByte	1.5 MByte
RAM	32 kByte	32 kByte	32 kByte	32 kByte
ROM	–	–	–	–
CPU	32-bit	32-bit	32-bit	32-bit
Symmetrical cryptography	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES
Asymmetrical cryptography	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 2048-bit
Ambient temperature	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C
Delivery forms	CSP, FCOS™ module, SMD, VQFN-8, sawn wafer, wirebond module	CSP, FCOS™ module, S-MFC5.4, S-MFC5.6, S-MFC5.8-8-1, sawn wafer, wirebond module	CSP, SMD, sawn wafer	CSP, sawn wafer
Typical applications	SIM and UICC for mobile communication	SIM and UICC for mobile communication	NFC embedded secure element - IC	NFC embedded secure element - IC
Certifications	CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo	CC EAL6+ high, EMVCo	CC EAL5+ high, EMVCo

[3] Please note that xxx in product names stands for NVM size

SLE 97CSNFX1M04PE NFC Optimized SOLID FLASH™	SLE 97CSNFX1M54PE NFC Optimized SOLID FLASH™	SLC 37ESAxxx new from Jan '18 NFC Optimized SOLID FLASH™
32-bit SWP security cryptocontroller for embedded secure element	32-bit SWP security cryptocontroller for embedded secure element	32-bit SWP security cryptocontroller for embedded secure element
GPIOs, ISO 7816, Mifare-compatible, SPI, SWP	GPIOs, ISO 7816, Mifare-compatible, SPI, SWP	GPIOs, ISO 7816, Mifare-compatible, SPI, SWP
1 MByte	1.5 MByte	1.2, 1.5, 2.0 MByte
32 kByte	32 kByte	48 kByte
–	–	–
32-bit	32-bit	32-bit
AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES
ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 2048-bit	ECC up to 521-bit, RSA up to 4096-bit
-25°C to +85°C	-25°C to +85°C	-25°C to +85°C
CSP, SMD, sawn wafer	CSP, sawn wafer	CSP, SMD, sawn wafer
NFC embedded secure element - IC	NFC embedded secure element - IC	NFC embedded secure element - IC
CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo	CC EAL6+ high, EMVCo

Near-Field Communication

	Boosted NFC secure elements			
Product name [4]	**SLE 77CAFX2400P(M)** NFC Optimized, SOLID FLASH™	**SLE 78CAFX1M1SPHM** Integrity Guard, NFC Optimized, SOLID FLASH™	**SLE 78CAFX4000P(M)** Integrity Guard, NFC Optimized, SOLID FLASH™	**SLE 78CAFX5xxxSPHM** Integrity Guard, NFC Optimized, SOLID FLASH™
Product description	Security cryptocontroller designed for boosted NFC	Boosted NFC secure element (SE)	Boosted NFC secure element (SE)	Boosted NFC secure element (SE)
Interfaces	ACLB, ISO 7816, Mifare-compatible	ACLB, I2C, ISO 7816, Mifare-compatible	ACLB, ISO 7816, Mifare-compatible	ACLB, GPIOs, ISO 7816, Mifare-compatible, SPI
NVM	240 kByte	628 kByte	400 kByte	500 kByte
RAM	6 kByte	12 kByte	8 kByte	8, 12, 18 kByte
ROM	–	444 kByte	–	–
CPU	16-bit	Dual 16-bit	Dual 16-bit	Dual 16-bit
Symmetrical cryptography	DES, 3DES	AES up to 256-bit, DES, 3DES, ECC, RSA	AES up to 256-bit, DES, 3DES, ECC, RSA	AES up to 256-bit, DES, 3DES, ECC, RSA
Asymmetrical cryptography	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit
Ambient temperature	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C
Delivery forms	Sawn wafer	Sawn wafer	Sawn wafer	Sawn wafer
Typical applications	Boosted secure element for NFC (Near-Field Communication)	–	–	–
Certifications	CC EAL5+ high, EMVCo	CC EAL6+ high, EMVCo	CC EAL6+ high, EMVCo	CC EAL6+ high, EMVCo

[4] Please note that xxx in product names stands for RAM size

SLE 78CAFX628SPHM Integrity Guard NFC Optimized SOLID FLASH™	**SLE 78CAX5xxxSPHM** Integrity Guard NFC Optimized SOLID FLASH™
Boosted NFC secure element (SE)	Boosted NFC secure element (SE)
ACLB, I2C, ISO 7816, Mifare-compatible	ACLB, GPIOs, ISO 7816, Mifare-compatible, SPI
628 kByte	500 kByte
12 kByte	8, 12, 18 kByte
–	182 kByte
Dual 16-bit	Dual 16-bit
AES up to 256-bit, DES, 3DES, ECC, RSA	AES up to 256-bit, DES, 3DES, ECC, RSA
ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit
-25°C to +85°C	-25°C to +85°C
Sawn wafer	Sawn wafer
–	–
CC EAL6+ high, EMVCo	CC EAL6+ high, EMVCo

Near-Field Communication

	NFC tags		
Product name	**SLE 66R01PN** NFC Ready	**SLE 66R32P** NFC Ready	**SLE 66R16P** NFC Ready
Product description	my-d™ move NFC, pre-configured NFC memory	my-d™ NFC, pre-configured NFC memory	my-d™ NFC, pre-configured NFC memory
Interfaces	ISO/IEC 14443-3 Type A, NFC Forum Type 2 Tag operation	ISO/IEC 14443-3 Type A, NFC Forum Type 2 Tag operation	ISO/IEC 14443-3 Type A, NFC Forum Type 2 Tag operation
Memory organization	1 fixed sector, pre-configured NFC memory	1 fixed sector, pre-configured NFC memory	1 fixed sector, pre-configured NFC memory
Counter	16-bit counter, anti-tearing support	16-bit counter, anti-tearing support	16-bit counter, anti-tearing support
EEPROM	128 byte (user), 24 byte (admin)	1048 byte (admin), 4072 byte (user)	2024 byte (user), 536 byte (admin)
Security features	32-bit password protection for read and/or write access, block locking, individual page locking, password retry counter, unique serial number	Individual page locking, unique serial number	Individual page locking, unique serial number
Distance (read/write)	Typically up to 10 cm and above	Typically up to 10 cm and above	Typically up to 10 cm and above
Data rate	106 kbit/s to card, 106 kbit/s to reader	106 kbit/s to card, up to 848 kbit/s to reader	106 kbit/s to card, up to 848 kbit/s to reader
Endurance	10000	100000	100000
Retention time	>5 years	>10 years	>10 years
Tools	Evaluation kit contactless	Evaluation kit contactless	Evaluation kit contactless
Delivery forms	NiAu-bump, sawn wafer	MCC2, MCC8, NiAu-bump	MCC2, MCC8, NiAu-bump
Typical applications	Device pairing, smart posters, consumer goods information	Device pairing, smart posters, consumer goods information	Device pairing, smart posters, consumer goods information

Government Identification

	Dual-interface & contactless security controller [7]			
Product name [3]	**SLE 77CLF1001P** SOLID FLASH™	**SLE 77CLFXxxx0PH** SOLID FLASH™	**SLE 78CLXxxx0P** Integrity Guard SOLID FLASH™	**SLE 78CLFXxxx0PH** Integrity Guard SOLID FLASH™
Product description	Contactless security controller	Contactless security cryptocontroller with dual-interface	Contactless security cryptocontroller with dual-interface	Contactless security cryptocontroller with dual-interface
Interfaces	ISO 14443 A/B, ISO 18092 passive mode, Mifare-compatible	ISO 14443 A/B, ISO 18092 passive mode, ISO 7816, Mifare-compatible	ISO 14443 A/B, ISO 18092 passive mode, ISO 7816, Mifare-compatible	ISO 14443 A/B, ISO 18092 passive mode, ISO 7816, Mifare-compatible
EEPROM	–	–	36, 80, 128, 144, 160 kByte	–
NVM	100 kByte	200, 240 kByte	–	240, 300, 404 kByte
RAM	4 kByte	6 kByte	8 kByte	8 kByte
ROM	–	–	280 kByte	–
CPU	16-bit	16-bit	Dual 16-bit	Dual 16-bit
Symmetrical cryptography	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES
Asymmetrical cryptography	–	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit
Ambient temperature	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C
Delivery forms	Sawn wafer, contactless module	Sawn wafer, contactless module, dual-interface module	Sawn wafer, contactless module, dual-interface module	Sawn wafer, contactless module, dual-interface module
Typical applications	National eID, eHealth card / eSocial card, eDriver's license, eVehicle registration card / eCar registration	National eID, eHealth card / eSocial card, eDriver's license, eVehicle registration card / eCar registration	National eID, ePassport, eHealth card / eSocial card, eDriver's license, eVisa, eResidence permit, eTachograph, eVehicle registration card / eCar registration, eSignature	National eID, ePassport, eHealth card / eSocial card, eDriver's license, eVisa, eResidence permit, eTachograph, eVehicle registration card / eCar registration, eSignature
Certifications	CC EAL5+ high	CC EAL5+ high	CC EAL5+ high	CC EAL6+ high, EMVCo

[3] Please note that xxx in product names stands for NVM size
[7] Supporting CIPURSE™ for all contactless and NFC applications

Government Identification

	Dual-interface & contactless security controller [7]			
Product name [3]	**SLE 78CLFXxxx0PH** Integrity Guard, SOLID FLASH™, Mega Memory	**SLE 78CLFXxxxVPH** Integrity Guard, SOLID FLASH™, VHBR	**SLE 78CLFXxxxVPH** Integrity Guard, SOLID FLASH™, VHBR, Mega Memory	**SLE 78CLFX1M10PH** Integrity Guard, SOLID FLASH™, Mega Memory
Product description	Contactless security cryptocontroller with dual-interface	Contactless security cryptocontroller with dual-interface	Contactless security cryptocontroller with dual-interface	Contactless security cryptocontroller with dual-interface
Interfaces	ISO 14443 A/B, ISO 18092 passive mode, ISO 7816, Mifare-compatible	ISO 14443 A/B, ISO 18092 passive mode, ISO 7816, Mifare-compatible	ISO 14443 A/B, ISO 18092 passive mode, ISO 7816, Mifare-compatible	ISO 14443 A/B, ISO 18092 passive mode, ISO 7816, Mifare-compatible
EEPROM	–	–	–	–
NVM	500, 628 kByte	300, 404 kByte	500, 628 kByte	628 kByte
RAM	12 kByte	8 kByte	12 kByte	12 kByte
ROM	–	–	–	444 kByte
CPU	Dual 16-bit	Dual 16-bit	Dual 16-bit	Dual 16-bit
Symmetrical cryptography	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES
Asymmetrical cryptography	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit
Ambient temperature	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C
Delivery forms	Sawn wafer, contactless module, dual-interface module	Sawn wafer, contactless module, dual-interface module	Sawn wafer, contactless module, dual-interface module	Sawn wafer, contactless module, dual-interface module
Typical applications	National eID, ePassport, eHealth card / eSocial card, eDriver's license, eVisa, eResidence permit, eTachograph, eVehicle registration card / eCar registration, eSignature	National eID, ePassport, eHealth card / eSocial card, eDriver's license, eVisa, eResidence permit, eTachograph, eVehicle registration card / eCar registration, eSignature	National eID, ePassport, eHealth card / eSocial card, eDriver's license, eVisa, eResidence permit, eTachograph, eVehicle registration card / eCar registration, eSignature	National eID, ePassport, eHealth card / eSocial card, eDriver's license, eVisa, eResidence permit, eTachograph, eVehicle registration card / eCar registration, eSignature
Certifications	CC EAL6+ high, EMVCo	CC EAL6+ high, EMVCo	CC EAL6+ high, EMVCo	CC EAL6+ high, EMVCo

[3] Please note that xxx in product names stands for NVM size
[7] Supporting CIPURSE™ for all contactless and NFC applications

		Contact-based security controller		
SLE 78CLFXxxxVPH Integrity Guard, SOLID FLASH™, VHBR, Mega Memory	**SLC 52GDAxxx** new Integrity Guard, SOLID FLASH™, VHBR	**SLE 77CF1200P** SOLID FLASH™	**SLE 77CFXxxx0P** SOLID FLASH™	**SLE 78CFXxxx0PH** Integrity Guard, SOLID FLASH™
Contactless security cryptocontroller with dual-interface	Contactless security cryptocontroller with dual-interface	Security controller	Security cryptocontroller	Security cryptocontroller
ISO 14443 A/B, ISO 18092 passive mode, ISO 7816, Mifare-compatible	ISO 14443 A/B, ISO 18092 passive mode, ISO 7816, Mifare-compatible	ISO 7816	ISO 7816	ISO 7816
–	–	–	–	–
628 kByte	248, 348, 448 kByte	120 kByte	184, 200, 240 kByte	240, 300, 404 kByte
12 kByte	12 kByte	4 kByte	6 kByte	8 kByte
444 kByte	–	–	–	–
Dual 16-bit	Dual 16-bit	16-bit	16-bit	Dual 16-bit
AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES, DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES
ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit	–	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit
-25°C to +85°C	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C
Sawn wafer, contactless module, dual-interface module	Sawn wafer, contactless module, dual-interface module	Sawn wafer, contact-based module	Sawn wafer, contact-based module	Sawn wafer, contact-based module
National eID, ePassport, eHealth card / eSocial card, eDriver's license, eVisa, eResidence permit, eTachograph, eVehicle registration card / eCar registration, eSignature	National eID, ePassport, eHealth card / eSocial card, eDriver's license, eVisa, eResidence permit, eTachograph, eVehicle registration card / eCar registration, eSignature	National eID, eHealth card / eSocial card	National eID, eHealth card / eSocial card	National eID, eHealth card / eSocial card, eDriver's license, eTachograph, eVehicle registration card / eCar registration, eSignature
CC EAL6+ high, EMVCo	CC EAL6+ high, EMVCo	CC EAL5+ high, EMVCo	CC EAL5+ high	CC EAL6+ high, EMVCo

Government Identification

	Contact-based security controller		
Product name [3]	**SLE 78CFXxxx0PH** Integrity Guard, SOLID FLASH™, Mega Memory	**SLE 78CFX1M10PH** Integrity Guard, SOLID FLASH™, Mega Memory	**SLC 52GCAxxx** new Integrity Guard, SOLID FLASH™
Product description	Security cryptocontroller	Security cryptocontroller	Security cryptocontroller
Interfaces	ISO 7816	ISO 7816	ISO 7816
EEPROM	–	–	–
NVM	500, 628 kByte	628 kByte	200, 300, 448 kByte
RAM	12 kByte	12 kByte	12 kByte
ROM	–	444 kByte	–
CPU	Dual 16-bit	Dual 16-bit	Dual 16-bit
Symmetrical cryptography	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES
Asymmetrical cryptography	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit
Ambient temperature	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C
Delivery forms	Sawn wafer, contact-based module	Sawn wafer, contact-based module	Sawn wafer, contact-based module
Typical applications	National eID, eHealth card / eSocial card, eDriver's license, eTachograph, eVehicle registration card / eCar registration, eSignature	National eID, eHealth card / eSocial card, eDriver's license, eTachograph, eVehicle registration card / eCar registration, eSignature	National eID, eHealth card / eSocial card, eDriver's license, eTachograph, eVehicle registration card / eCar registration, eSignature
Certifications	CC EAL6+ high, EMVCo	CC EAL6+ high, EMVCo	CC EAL6+ high, EMVCo

[3] Please note that xxx in product names stands for NVM size

Government Identification Solutions

	Java Card™ platform on SLE 77	Java Card™ platform on SLE 78		
Product name [5]	**SLJ 32GDA064CL** SOLID FLASH™	**SLJ 52GCAxxxCL** Integrity Guard	**SLJ 52GDLxxxCL** Integrity Guard	**SLJ 52GCAxxxCR** Integrity Guard SOLID FLASH™
Product description	Java Card platform	Java Card platform	Java Card platform	Java Card platform
Communication interfaces	ISO 14443 A/B, ISO 7816	ISO 7816	ISO 14443 A/B, ISO 7816, Mifare-compatible	ISO 7816
Supported standards	GP 2.1.1, JC 3.0	GP2.2.1, JC3.0	GP2.2.1, JC3.0	GP2.2.1, JC3.0
EEPROM	64 kByte	36, 80, 128, 150 kByte	36, 80, 128, 150 kByte	36, 80, 128 kByte
Operating system	Trusted Logic (jTOP ID flex)	Trusted Logic (jTOP ID)	Trusted Logic (jTOP ID)	Oracle (Oracle JCOS I)
Symmetrical cryptography	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES
Asymmetrical cryptography	RSA up to 2048-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 3072-bit
Typical applications	All applications such as national eID, ePassport, eHealth card / eSocial card, eDriver's license, eVisa, eResidence permit, eTachograph, eVehicle registration card / eCar registration, eSignature	All applications such as national eID, ePassport, eHealth card / eSocial card, eDriver's license, eVisa, eResidence permit, eTachograph, eVehicle registration card / eCar registration, eSignature	All applications such as national eID, ePassport, eHealth card / eSocial card, eDriver's license, eVisa, eResidence permit, eTachograph, eVehicle registration card / eCar registration, eSignature	All applications such as national eID, ePassport, eHealth card / eSocial card, eDriver's license, eVisa, eResidence permit, eTachograph, eVehicle registration card / eCar registration, eSignature
Certifications	–	CC EAL5+ high	CC EAL5+ high	CC EAL5+ high, FIPS 140-2

[5] Please note that xxx in product names stands for EEPROM size

Government Identification Solutions

	Java Card™ platform on SLE 78		Java Card™ platform on SLE 78 with applet	
Product name [5]	**SLJ 52GCAxxxCC** new Integrity Guard, SOLID FLASH™	**SLJ 52GDAxxxVC** new Integrity Guard, SOLID FLASH™, VHBR	**SLJ 52GCA080BL** Integrity Guard	**SLJ 52GDA080BL** Integrity Guard
Product description	Java Card platform	Java Card platform	Java Card platform including eDriver License (eMRTD applet)	Java Card platform including eDriver License (eMRTD applet)
Communication interfaces	ISO 7816	ISO 14443 A/B VHBR, ISO 7816	ISO 7816	ISO 14443 A/B, ISO 7816
Supported standards	GP2.2.1, JC3.0	GP2.2.1, JC3.0	ISO 18013 BAP, EAP config 1-4, ISO 7816-4, 8, 9	ISO 18013 BAP, EAP config 1-4, ISO 7816-4, 8, 9
EEPROM	36, 80, 128 kByte	36, 80, 128 kByte	80 kByte	80 kByte
Operating system	Oracle (Oracle JCOS II)	Oracle (Oracle JCOS II)	Trusted Logic (jTOP ID)	Trusted Logic (jTOP ID)
Symmetrical cryptography	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES
Asymmetrical cryptography	ECC up to 521-bit, RSA up to 3072-bit	ECC up to 521-bit, RSA up to 3072-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit
Typical applications	All applications such as national eID, ePassport, eHealth card / eSocial card, eDriver's license, eVisa, eResidence permit, eTachograph, eVehicle registration card / eCar registration, eSignature	All applications such as national eID, ePassport, eHealth card / eSocial card, eDriver's license, eVisa, eResidence permit, eTachograph, eVehicle registration card / eCar registration, eSignature	eDriver's license	eDriver's license
Certifications	CC EAL5+ high	CC EAL5+ high	–	–

[5] Please note that xxx in product names stands for EEPROM size

SLJ 52GCA080BR Integrity Guard SOLID FLASH™	SLJ 52GCA080BC new Integrity Guard SOLID FLASH™	SLJ 52GDA080RC new Integrity Guard SOLID FLASH™ VHBR	SLJ 52GDA128AL Integrity Guard	SLJ 52GLA080AR Integrity Guard SOLID FLASH™
Java Card platform including eDriver License (eMRTD applet)	Java Card platform including eDriver License (eMRTD applet)	Java Card platform including eDriver License (eMRTD applet)	Java Card platform including eMRTD applet	Java Card platform including eMRTD applet
ISO 7816	ISO 7816	ISO 14443 A/B VHBR, ISO 7816	ISO 14443 A/B, ISO 7816	ISO 14443 A/B
ISO 18013 BAP, EAP config 1-4, ISO 7816-4, 8, 9	ISO 18013 BAP, EAC, SAC, ISO 7816-4, 8, 9	ISO 18013 BAP, EAC, SAC, ISO 7816-4, 8, 9	ICAO BAC, EAC, SAC, ISO 7816-4, 8, 9	ICAO BAC, EAC, SAC, ISO 7816-4, 8, 9
80 kByte	80 kByte	80 kByte	128 kByte	80 kByte
Oracle (Oracle JCOS I)	Oracle (Oracle JCOS II)	Oracle (Oracle JCOS II)	Trusted Logic (jTOP ID)	Oracle (Oracle JCOS I)
AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES
ECC up to 384-bit, RSA up to 1536-bit	ECC up to 384-bit, RSA up to 1536-bit	ECC up to 384-bit, RSA up to 1536-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 384-bit, RSA up to 1536-bit
eDriver's license	eDriver's license	eDriver's license	ePassport, eResidence permit, eIdentity card	ePassport, eResidence permit, eIdentity card
–	–	–	CC EAL4+ high	–

Government Identification Solutions

	Java Card™ platform on SLE 78 with applet		
Product name	**SLJ 52GDA080HC** new Integrity Guard, SOLID FLASH™, VHBR, Coil on Module	**SLJ 52GCA080DC** new Integrity Guard, SOLID FLASH™	**SLJ 52GDA080KC** new Integrity Guard, SOLID FLASH™, VHBR
Product description	Java Card platform including eMRTD applet	Java Card platform including PKI applet	Java Card platform including PKI applet
Communication interfaces	ISO 14443 A/B VHBR, ISO 7816	ISO 7816	ISO 14443 A/B VHBR, ISO 7816
Supported standards	ICAO BAC, EAC, SAC, ISO 7816-4, 8, 9	ICAO EAC, SAC, PKCS#15	ICAO EAC, SAC, PKCS#15
EEPROM	80 kByte	80 kByte	80 kByte
Operating system	Oracle (Oracle JCOS II)	Oracle (Oracle JCOS II)	Oracle (Oracle JCOS II)
Symmetrical cryptography	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES
Asymmetrical cryptography	ECC up to 384-bit, RSA up to 1536-bit	ECC up to 384-bit, RSA up to 2048-bit	ECC up to 384-bit, RSA up to 2048-bit
Typical applications	ePassport, eResidence permit, eIdentity card,	eAuthentication, eHealthcare, eSignature, eWelfare social security, secured file transfer	eAuthentication, eHealthcare, eSignature, eWelfare social security, secured file transfer
Certifications	CC EAL4+ high	CC EAL4+ high	CC EAL4+ high

	Native generic ID platform on SLE 78			
Product name [6]	**SLN 52GCAxxxyM** Integrity Guard	**SLN 52GDAxxxyM** Integrity Guard	**SLN 52GDAxxxyK** new Integrity Guard SOLID FLASH™ VHBR	**SLN 52GDAxxxHK** new Integrity Guard SOLID FLASH™ VHBR
Product description	Native generic ID platform including ePass, eDriver's license and eSign use case	Native generic ID platform including ePass, eDriver's license and eSign use case	Native generic ID platform including ePass, eDriver's license and eSign use case	Native generic ID platform including ePass use case
Communication interfaces	ISO 7816	ISO 14443 A/B, ISO 7816	ISO 14443 A/B VHBR, ISO 7816	ISO 14443 A/B VHBR, ISO 7816
Supported standards	BSI-TR03110 v1.11 and v2.05 EAC, ICAO BAC, SAC, AA, ISO 18013 BAP, EAP config 1-4, ISO 7816-4, 8, 9, PKCS#15	BSI-TR03110 v1.11 and v2.05 EAC, ICAO BAC, SAC, AA, ISO 18013 BAP, EAP config 1-4, ISO 7816-4, 8, 9, PKCS#15	BSI-TR03110 v1.11 and v2.05 EAC, ICAO BAC, SAC, AA, ISO 18013 BAP, EAP config 1-4, ISO 7816-4, 8, 9, PKCS#15	BSI-TR03110 v1.11 and v2.05 EAC, ICAO BAC, SAC, AA
EEPROM	36, 80, 128 kByte	36, 80, 128 kByte	36, 80, 128 kByte	36, 80, 128 kByte
Operating system	Masktech (MTCOS ID 2.2)	Masktech (MTCOS ID 2.2)	Masktech (MTCOS ID 2.5)	Masktech (MTCOS ID 2.5)
Symmetrical cryptography	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES
Asymmetrical cryptography	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit
Typical applications	eAuthentication, eDriver's license, eHealthcare, eIdentity card, ePassport, eSignature, eWelfare social security, secured file transfer	eAuthentication, eDriver's license, eHealthcare, eIdentity card, ePassport, eSignature, eWelfare social security, secured file transfer	eAuthentication, eDriver's license, eHealthcare, eIdentity card, ePassport, eSignature, eWelfare social security, secured file transfer	eIdentity card, ePassport, eResidence permit
Certifications	ePass CC EAL5+ high	ePass CC EAL5+ high	ePass CC EAL5+ high	ePass CC EAL5+ high

[6] Please note that xxx in product names stands for EEPROM size, y specifies an application (e.g. eAuthentication, eHealthcare, eSignature, etc.)

USB Tokens

	USB tokens (16-bit)			
Product name [3]	**SLE 78CUFXxxx9PH** Integrity Guard SOLID FLASH™	**SLE 78CUFX3000PH** Integrity Guard SOLID FLASH™	**SLE 78CLUFX3000PH** Integrity Guard SOLID FLASH™	**SLE 78CLUFX5000PH** Integrity Guard SOLID FLASH™
Product description	USB security cryptocontroller for use in chipcard form factor	USB security cryptocontroller	Multi-interface USB security cryptocontroller with a contactless interface	Multi-interface USB security cryptocontroller with a contactless interface
Interfaces	ISO 7816, USB 2.0	4 GPIOs, ISO 7816, USB 2.0	4 GPIOs, I2C, ISO 14443 A/B, ISO 18092 passive mode, ISO 7816, Mifare-compatible, USB 2.0	12 GPIOs, I2C, ISO 14443 A/B, ISO 18092 passive mode, ISO 7816, Mifare-compatible, SPI, USB 2.0
NVM	300, 500 kByte	300 kByte	300 kByte	500 kByte
RAM	12 kByte	12 kByte	12 kByte	16 kByte
ROM	–	–	–	–
CPU	Dual 16-bit	Dual 16-bit	Dual 16-bit	Dual 16-bit
Crypto coprocessor symmetrical	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES
Crypto coprocessor asymmetrical	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit
Ambient temperature	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C
Delivery forms	Sawn wafer	VQFN-32, sawn wafer	VQFN-32, sawn wafer	VQFN-32, sawn wafer
Certifications	CC EAL6+ high, EMVCo	CC EAL6+ high, EMVCo	CC EAL6+ high, EMVCo	CC EAL6+ high, EMVCo

[3] Please note that xxx in product names stands for NVM size

SLE 78CLUFX5007PH Integrity Guard SOLID FLASH™	SLE 78CLUX5000PH Integrity Guard SOLID FLASH™	SLE 78CLUX5007PH Integrity Guard SOLID FLASH™	SLE 78CUFX5000PH Integrity Guard SOLID FLASH™
Multi-interface USB security cryptocontroller with a contactless interface	Multi-interface USB security cryptocontroller with a contactless interface	Multi-interface USB security cryptocontroller with a contactless interface	Multi-interface USB security cryptocontroller
12 GPIOs, I2C, ISO 14443 A/B, ISO 18092 passive mode, ISO 7816, Mifare-compatible, SPI, USB 2.0, optimized for sub-ID1	12 GPIOs, I2C, ISO 14443 A/B, ISO 18092 passive mode, ISO 7816, Mifare-compatible, SPI, USB 2.0	12 GPIOs, I2C, ISO 14443 A/B, ISO 18092 passive mode, ISO 7816, Mifare-compatible, SPI, USB 2.0, optimized for sub-ID1	12 GPIOs, I2C, ISO 7816, SPI, USB 2.0
500 kByte	500 kByte	500 kByte	500 kByte
16 kByte	16 kByte	16 kByte	16 kByte
–	182 kByte	182 kByte	–
Dual 16-bit	Dual 16-bit	Dual 16-bit	Dual 16-bit
AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES
ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit
-25°C to +85°C	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C
VQFN-32, sawn wafer	VQFN32, sawn wafer	VQFN-32, sawn wafer	VQFN-32, sawn wafer
CC EAL6+ high, EMVCo	CC EAL6+ high, EMVCo	CC EAL6+ high, EMVCo	CC EAL6+ high, EMVCo

USB Tokens

	USB tokens (32-bit)			
Product name [3]	**SLE 97CUFX500FPH** SOLID FLASH™	**SLE 97CUFX5000PH** SOLID FLASH™	**SLE 97CUSIFX1M00PH** SOLID FLASH™ Mega Memory	**SLM 97CUSIFX1M00PH** new SOLID FLASH™ Mega Memory
Product description	USB security cryptocontroller for use in chipcard formfactor	USB security cryptocontroller	Multi-interface USB security cryptocontroller	Multi-interface USB security cryptocontroller for industrial use
Interfaces	ISO 7816, USB 2.0	ISO 7816, USB 2.0	4 GPIOs, I2C, ISO 7816, SPI, USB 2.0	4 GPIOs, I2C, ISO 7816, SPI, USB 2.0
NVM	504 kByte	504 kByte	1 MByte	1 MByte
RAM	20 kByte	20 kByte	32 kByte	32 kByte
CPU	32-bit	32-bit	32-bit	32-bit
Crypto coprocessor symmetrical	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES
Crypto coprocessor asymmetrical	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit
Ambient temperature	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C	-40°C to +105°C
Delivery forms	Sawn wafer	Sawn wafer, VQFN-32, VQFN-8, USON 8	VQFN-32, sawn wafer	VQFN-32, sawn wafer
Certifications	CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo

[3] Please note that xxx in product names stands for NVM size

SLE 97CUSIFXxxx0PH SOLID FLASH™	**SLM 97CUSIFXxxx0PH** new SOLID FLASH™
Multi-interface USB security cryptocontroller	Multi-interface USB security cryptocontroller for industrial use
4 GPIOs, I2C, ISO 7816, SPI, USB 2.0	4 GPIOs, I2C, ISO 7816, SPI, USB 2.0
504, 792 kByte	504, 792 kByte
24 kByte	24 kByte
32-bit	32-bit
AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES
ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit
-25°C to +85°C	-40°C to +105°C
VQFN-32, sawn wafer	VQFN-32, sawn wafer
CC EAL5+ high, EMVCo	CC EAL5+ high, EMVCo

Transport Ticketing

	Security products with integrated CIPURSE™ functionality		
Product name [5]	**SLM 10TLC002L**	**SLS 32TLCxxxS(M)**	**SLS 32TLC100(M)**
Product description	CIPURSE™move	CIPURSE™4move	CIPURSE™ security controller
Interfaces	ISO 14443 A, NFC Forum Type 4 Tag configurable	ISO 14443 A, Mifare-compatibility optional, NFC Forum Type 4 Tag configurable	ISO 14443 A, Mifare-compatibility optional, NFC Forum Type 4 Tag configurable
Integrated CIPURSE™ functionality	Security architecture of CIPURSE™, built-in command set based on ISO 7816-4/-9, fully configurable file system based on ISO/ IEC 7816-4	Security architecture of CIPURSE™, built-in command set based on ISO 7816-4/-9, fully configurable file system based on ISO/ IEC 7816-4	Security architecture of CIPURSE™, built-in command set based on ISO 7816-4/-9, fully configurable file system based on ISO/ IEC 7816-4
Supported profiles	CIPURSE™L profile	CIPURSE™S profile	CIPURSE™T profile
Capabilities	1 CIPURSE™ application	Up to 8 CIPURSE™ applications configurable, Mifare 1K/4K-compatible emulation optional	Up to 8/16 CIPURSE™ applications configurable, Mifare 1K/4K-compatible emulation optional
EEPROM	304 Byte	2, 4 kByte	8 kByte
Cryptography	AES 128-bit	AES 128-bit	AES 128-bit
Delivery forms	MCC8, NiAu-bump, sawn wafer	MCC8, NiAu-bump, sawn wafer	MCC8, NiAu-bump, sawn wafer
Tools	CIPURSE™ development kit	CIPURSE™ development kit	CIPURSE™ development kit
Typical applications	Public transport, ticketing, access management, micropayment	Public transport, ticketing, access management, micropayment	Public transport, ticketing, access management, micropayment
Certifications	CIPURSE™	CC EAL5+ high, CIPURSE™	CC EAL5+ high, CIPURSE™

[5] Please note that xxx in product names stands for EEPROM size

	Contactless security controller
Product name [3]	**SLE 77CLFxxx1P(M)** SOLID FLASH™
Product description	Contactless security controller
Interfaces	ISO 14443 A/B, ISO 18092 passive mode, Mifare-compatible
NVM	60, 100 kByte
RAM	4 kByte
CPU	16-bit
Cryptography	AES up to 256-bit, DES, 3DES
Ambient temperature	-25°C to +85°C
Delivery forms	MCC8, NiAu-bump, sawn wafer
Typical applications	Public transport, ticketing
Certifications	CC EAL5+ high

[3] Please note that xxx in product names stands for NVM size

Transport Ticketing

	Contactless memory-based card and ticket products		
Product name	**SLE 66R35**	**SLE 66R01L**	**SLE 66R01P**
Product description	(E7) = Supporting 7-byte UID, (I) = Supporting 4-byte fixed number, non unique ID, (R) = Supporting 4-byte reused ID, Intelligent 1 kByte EEPROM	my-d™ move lean	my-d™ move
Interface	ISO/IEC 14443-3 Type A	ISO/IEC 14443-3 Type A, NFC Forum Type 2 Tag operation	ISO/IEC 14443-3 Type A, NFC Forum Type 2 Tag operation
Memory organization	16 fixed sectors	1 fixed sector	1 fixed sector
Counter	–	–	16-bit counter, anti-tearing support
EEPROM	768 Byte (user), 256 Byte (admin)	48 Byte (user), 16 Byte (admin)	128 Byte (user), 24 Byte (admin)
Security features	Mutual three-pass authentication with 48-bit keys, transport key	Block locking, individual page locking, unique serial number	32-bit password protection for read and/or write access, block locking, individual page locking, password retry counter, unique serial number
Distance (read/write)	Typically up to 10 cm and above	Typically up to 10 cm and above	Typically up to 10 cm and above
Data rate	106 kbit/s to card, 106 kbit/s to reader	106 kbit/s to card, 106 kbit/s to reader	106 kbit/s to card, 106 kbit/s to reader
Endurance	100000	10000	10000
Retention time, minimum	>10 years	>5 years	>5 years
Delivery forms	MCC2, MCC8, NiAu-bump, sawn wafer	NiAu-bump, sawn wafer	NiAu-bump, sawn wafer
Tools	Evaluation kit contactless	Evaluation kit contactless	Evaluation kit contactless
Typical applications	Transport ticketing, access management	Transport ticketing, access management	Transport ticketing, access management

	CIPURSE™ components for terminals
Product name	**CIPURSE™SAM (Secure Access Module)** **SLF 9630**
Product description	CIPURSE™ secure access module with Mifare-compatible interface. Enables secured authentication between the reader and CIPURSE™ chip cards or cards using Mifare technology, AES128-based authentication schemes. It features a dedicated key management system including key derivation and key upload.
Interface	ISO 7816
Memory organization	Fully configurable, multi-application file system
Security features	3DES, AES128, AES192, AES256, CIPURSE™ and Mifare-compatible encryption, online and offline mode, secured key loading
Data rate	Subject to the active interface
Delivery forms	ID-1/ID-000 card (SIM format), VQFN-8
Tools	CIPURSE™ development kit
Typical applications	Access control, authentication, micropayment, transport ticketing
Certifications	CC EAL6+ high for HW, CIPURSE™

Authentication

	Turnkey solution		
Product name	**OPTIGA™ TRUST P SLJ 52ACA**	**OPTIGA™ TRUST B SLE 95250** new	**OPTIGA™ TRUST E SLS 32AIA** SOLID FLASH™
Product description	Programmable authentication and device security solution	Product authentication and brand protection solution	Enhanced authentication solution for high value goods
Interfaces	ISO 7816	SWI	I2C
EEPROM	150 kByte	512 bit	–
NVM	–	–	3 kByte
RAM	8 kByte	–	–
CPU	16-bit	State machine	16-bit
Symmetrical cryptography	AES up to 256-bit, DES, 3DES	–	–
Asymmetrical cryptography	ECC up to 521-bit, RSA up to 2048-bit	ECC 131-bit	ECC 256-bit
Ambient temperature	-25°C to +85°C	-40°C to +85°C	-40°C to +85°C
Delivery forms	VQFN-32	TSNP-6	USON-10-2
Typical applications	USB type-C, PKI networks, smart home, industrial automation, Internet of Things (IoT), authentication of system services and accessories, functionalities and parts in networked systems, M2M communication, smart metering, system configuration management, IP/software protection	Authentication of consumer electronics, accessories, original replacement parts	PKI networks, consumer electronics, smart home, industrial automation, Internet of Things (IoT), authentication of system services and accessories, original replacement parts, smart metering, system configuration management, IP/software protection
Certifications	CC EAL5+ high	–	–

	Contact-based security controller		Pay TV
Product name	**SLE 97CIFX1M00PE** SOLID FLASH™	**SLE 97CSFX1M00PE** SOLID FLASH™	**SLE 79CFXXXP** SOLID FLASH™
Product description	Security cryptocontroller	Security cryptocontroller	Security controller
Interfaces	I2C, ISO 7816	ISO 7816, SPI	ISO 7816
EEPROM	–	–	–
NVM	1 MByte	1 MByte	–
RAM	32 kByte	32 kByte	8 kByte
CPU	32-bit	32-bit	Dual 16-bit
Symmetrical cryptography	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES	AES up to 256-bit, DES, 3DES
Asymmetrical cryptography	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit	ECC up to 521-bit, RSA up to 4096-bit
Ambient temperature	-25°C to +85°C	-25°C to +85°C	-25°C to +85°C
Delivery forms	SMD, sawn wafer	SMD, sawn wafer	FCOS™ module, SMD, VQFN-8, sawn wafer, Wirebond module
Typical applications	Authentication of system services, printers, system configuration management	Authentication of system services, printers, system configuration management	Conditional access
Certifications	CC EAL5+ high	CC EAL5+ high	CC EAL5+ high

Trusted Computing

	OPTIGA™ trusted platform module (TPM)			
Product name	**OPTIGA™ SLB 9645 TT1.2**	**OPTIGA™ SLB 9645 XQ1.2**	**OPTIGA™ SLB 9645 XT1.2**	**OPTIGA™ SLB 9660 TT1.2**
Product description	Security cryptocontroller for trusted platform modules	Security cryptocontroller for trusted platform modules	Security cryptocontroller for trusted platform modules	Security cryptocontroller for trusted platform modules
Interfaces	I2C	I2C	I2C	LPC
CPU	16-bit	16-bit	16-bit	16-bit
Symmetrical cryptography	AES, HMAC, SHA-1	AES, HMAC, SHA-1	AES, HMAC, SHA-1	AES, HMAC, SHA-1
Asymmetrical cryptography	RSA1024, RSA2048	RSA1024, RSA2048	RSA1024, RSA2048	RSA1024, RSA2048
Ambient temperature	-20°C to +85°C	-40°C to +85°C	-40°C to +85°C	-20°C to +85°C
Package	TSSOP-28	VQFN-32	TSSOP-28	TSSOP-28
Typical applications	Embedded TPM	Embedded TPM	Embedded TPM	PC TPM
Certifications	–	–	–	CC EAL4+
Standard	Version 1.2 Rev. 116	Version 1.2 Rev. 116	Version 1.2 Rev. 116	Version 1.2 Rev. 116

OPTIGA™ SLB 9660 VQ1.2	OPTIGA™ SLB 9660 XQ1.2	OPTIGA™ SLB 9660 XT1.2	OPTIGA™ SLB 9665 TT2.0	OPTIGA™ SLB 9665 VQ2.0
Security cryptocontroller for trusted platform modules	Security cryptocontroller for trusted platform modules	Security cryptocontroller for trusted platform modules	Security cryptocontroller for trusted platform modules	Security cryptocontroller for trusted platform modules
LPC	LPC	LPC	LPC	LPC
16-bit	16-bit	16-bit	16-bit	16-bit
AES, HMAC, SHA-1	AES, HMAC, SHA-1	AES, HMAC, SHA-1	AES, HMAC, SHA-1, SHA-256	AES, HMAC, SHA-1, SHA-256
RSA1024, RSA2048	RSA1024, RSA2048	RSA1024, RSA2048	ECC, ECC BN-256, ECC NIST P-256, ECC256, ECDH, RSA1024, RSA2048	ECC, ECC BN-256, ECC NIST P-256, ECC256, ECDH, RSA1024, RSA2048
-20°C to +85°C	-40°C to +85°C	-40°C to +85°C	-20°C to +85°C	-20°C to +85°C
VQFN-32	VQFN-32	TSSOP-28	TSSOP-28	VQFN-32
PC TPM	PC TPM, embedded TPM	PC TPM, embedded TPM	PC TPM	PC TPM
CC EAL4+	CC EAL4+	CC EAL4+	CC EAL4+	CC EAL4+
Version 1.2 Rev. 116	Version 1.2 Rev. 116	Version 1.2 Rev. 116	Version 2.0 Rev. 01.16	Version 2.0 Rev. 01.16

Trusted Computing

	OPTIGA™ trusted platform module (TPM)			
Product name	**OPTIGA™ SLB 9665 XQ2.0**	**OPTIGA™ SLB 9665 XT2.0**	**OPTIGA™ SLB 9670 VQ1.2**	**OPTIGA™ SLB 9670 VQ2.0**
Product description	Security cryptocontroller for trusted platform modules	Security cryptocontroller for trusted platform modules	Security cryptocontroller for trusted platform modules	Security cryptocontroller for trusted platform modules
Interfaces	LPC	LPC	SPI	SPI
CPU	16-bit	16-bit	16-bit	16-bit
Symmetrical cryptography	AES, HMAC, SHA-1	AES, HMAC, SHA-1	AES, HMAC, SHA-1	AES, HMAC, SHA-1, SHA-256
Asymmetrical cryptography	RSA1024, RSA2048	RSA1024, RSA2048	RSA1024, RSA2048	ECC, ECC BN-256, ECC NIST P-256, ECC256, ECDH, RSA1024, RSA2048
Ambient temperature	-40°C to +85°C	-40°C to +85°C	-20°C to +85°C	-20°C to +85°C
Package	VQFN-32	TSSOP-28	VQFN-32	VQFN-32
Typical applications	Embedded TPM	PC TPM, embedded TPM	PC TPM, embedded TPM	PC TPM, embedded TPM
Certifications	CC EAL4+	CC EAL4+	CC EAL4+	CC EAL4+
Standard	Version 2.0 Rev. 01.16	Version 2.0 Rev. 01.16	Version 1.2 Rev. 116	Version 2.0 Rev. 01.16

OPTIGA™ SLB 9670 XQ1.2	**OPTIGA™ SLB 9670 XQ2.0**
Security cryptocontroller for trusted platform modules	Security cryptocontroller for trusted platform modules
SPI	SPI
16-bit	16-bit
AES, HMAC, SHA-1	AES, HMAC, SHA-1, SHA-256
RSA1024, RSA2048	ECC, ECC BN-256, ECC NIST P-256, ECC256, ECDH, RSA1024, RSA2048
-40°C to +85°C	-40°C to +85°C
VQFN-32	VQFN-32
PC TPM, embedded TPM	PC TPM, embedded TPM
CC EAL4+	CC EAL4+
Version 1.2 Rev. 116	Version 2.0 Rev. 01.16

Object Identification

	my-d™ vicinity plain		my-d™ vicinity secure	
Product name	**SRF 55V02P**	**SRF 55V02P HC**	**SRF 55V02S**	**SRF 55V02S HC**
Product description	my-d™ vicinity	my-d™ vicinity, high capacitance	my-d™ vicinity secure, security memory with authentication	my-d™ vicinity secure, security memory with authentication, high capacitance
Interface	ISO/IEC 18000-3 mode 1	ISO/IEC 18000-3 mode 1	ISO/IEC 18000-3 mode 1	ISO/IEC 18000-3 mode 1
Memory organization	1 fixed sector	1 fixed sector	Fully configurable, up to 15 sectors (14 secure, 1 plain)	Fully configurable, up to 15 sectors (14 secure, 1 plain)
Counter	Anti-tearing support, up to 65, 536 units	Anti-tearing support, up to 65, 536 units	Anti-tearing support, up to 65, 536 units	Anti-tearing support, up to 65, 536 units
EEPROM	232 Byte (user), 64 Byte (admin)	232 Byte (user), 64 Byte (admin)	224 Byte (user), 64 Byte (admin)	224 Byte (user), 64 Byte (admin)
Security features	Individual page locking, unique serial number	Individual page locking, unique serial number	Hierarchical key management, mutual authentication, transport key, unique serial number	Hierarchical key management, mutual authentication, transport key, unique serial number
Distance (read/write)	Typically up to 1.5 m	Typically up to 1.5 m	Typically up to 1.5 m	Typically up to 1.5 m
Data rate	26.48 kbit/s	26.48 kbit/s	26.48 kbit/s	26.48 kbit/s
Endurance	100000	100000	100000	100000
Retention time, minimum	>10 years	>10 years	>10 years	>10 years
Delivery forms	MCC2, MCC8, NiAu-bump, sawn wafer	MCC2, MCC8, NiAu-bump, sawn wafer	MCC2, MCC8, NiAu-bump, sawn wafer	MCC2, MCC8, NiAu-bump, sawn wafer
Tools	Evaluation kit contactless	Evaluation kit contactless	Evaluation kit contactless	Evaluation kit contactless
Typical applications	Inventory control, libraries	CD inlays, laundry	Ticketing, brand protection	Ticketing, brand protection

SRF 55V10P	SRF 55V10P HC	SRF 55V10S	SRF 55V10S HC
my-d™ vicinity	my-d™ vicinity, high capacitance	my-d™ vicinity secure, security memory with authentication	my-d™ vicinity secure, security memory with authentication, high capacitance
ISO/IEC 18000-3 mode 1	ISO/IEC 18000-3 mode 1	ISO/IEC 18000-3 mode 1	ISO/IEC 18000-3 mode 1
1 fixed sector	1 fixed sector	Fully configurable, up to 15 sectors (14 secure, 1 plain)	Fully configurable, up to 15 sectors (14 secure, 1 plain)
Anti-tearing support, up to 65, 536 units	Anti-tearing support, up to 65, 536 units	Anti-tearing support, up to 65, 536 units	Anti-tearing support, up to 65, 536 units
1000 Byte (user), 256 Byte (admin)	1000 Byte (user), 256 Byte (admin)	992 Byte (user), 256 Byte (admin)	992 Byte (user), 256 Byte (admin)
Individual page locking, unique serial number	Individual page locking, unique serial number	Hierarchical key management, mutual authentication, transport key, unique serial number	Hierarchical key management, mutual authentication, transport key, unique serial number
Typically up to 1.5 m	Typically up to 1.5 m	Typically up to 1.5 m	Typically up to 1.5 m
26.48 kbit/s	26.48 kbit/s	26.48 kbit/s	26.48 kbit/s
100000	100000	100000	100000
>10 years	>10 years	>10 years	>10 years
MCC2, MCC8, NiAu-bump, sawn wafer	MCC2, MCC8, NiAu-bump, sawn wafer	MCC2, MCC8, NiAu-bump, sawn wafer	MCC2, MCC8, NiAu-bump, sawn wafer
Evaluation kit contactless	Evaluation kit contactless	Evaluation kit contactless	Evaluation kit contactless
Transport ticketing	Transport ticketing	Authentication, transport ticketing	Authentication, transport ticketing

Modules

	Contact-based controller modules			
Product name	**S-MID4.8**	**S-MFC6.8**	**S-MFC6.6**	**S-MFC5.4**
Picture				
Product description	Contact-based module for highly demanding applications	Contact-based module, 8 contacts	Contact-based module, 6 contacts	Contact-based module, 6 contacts, FCOS™ technology, transparent PET tape
Pitch	14.25 mm	14.25 mm	9.5 mm	9.5 mm
Dimensions	13 x 11.8 mm	13 x 11.8 mm	11 x 8.3 mm	10.4 x 7.6 mm or 11 x 8.3 mm
Thickness	max. 420 µm	max. 420 µm	max. 420 µm	max. 420 µm
Contact surface	NiAu	NiAu	NiAu	NiAu
ISO reference	ISO 7816-1, ISO 10373-1/-3, ISO 7810	ISO 7816-1, ISO 10373-1/-3, ISO 7810	ISO 7816-1, ISO 10373-1/-3, ISO 7810	ISO 7816-1, ISO 10373-1/-3, ISO 7810
Derivatives	Au surface, Pd surface	Au surface, Pd surface	Au surface, Pd surface	Au surface
Delivery form	Tape on Reel	Tape on Reel	Tape on Reel	Tape on Reel
Main applications	Authentication, government identification	Payment, government identification	Payment, government identification	Mobile communication

P-M2M4.7	**P-M4.8**	**T-M4.8**
Contact-based module, 8 contacts, epoxy tape, mold, wire bond	Contact-based module, 8 contacts, epoxy tape, mold, wire bond	Contact-based module, 8 contacts, epoxy tape, wire bond globe top
14.25 mm	14.25 mm	14.25 mm
12.8 x 10.8 mm	13 x 11.8 mm	13 x 11.8 mm
max. 600 µm	max. 600 µm	max. 580 µm
NiAu	NiAu	NiAu
ISO 7816-1, ISO 10373-1/-3, ISO 7810	ISO 7816-1, ISO 10373-1/-3, ISO 7810	ISO 7816-1, ISO 10373-1/-3, ISO 7810
Au surface	Au surface, Pd surface	Au surface, Pd surface
Tape on Reel	Tape on Reel	Tape on Reel
M2M	Payment, government identification	Payment, government identification, Pay TV

Modules

	Contactless controller & memory modules			Dual-interface modules
Product name	**P-MCS8-2-1**	**P-MCC8-2-6**	**P-MCC2-2-1**	**S-COM10.6** Coil on Module
Picture				
Product description	Thin contactless module, mold	Standard contactless module, mold	Contactless module, mold	Dual-interface module with inductive coupling for highly demanding applications
Pitch	9.5 mm	9.5 mm	4.75 mm	14.25 mm
Dimensions	8.1 x 5.15 mm	8.1 x 5.15 mm	10.3 x 2.9 mm	13 x 11.8 mm
Thickness	max. 250 µm	max. 340 µm	max. 330 µm	max. 420 µm
Contact surface	Ag	Ag	Ag	NiAu
ISO reference	ISO 7816-1, ISO 10373-1/-3, ISO 7810, ISO 14443	ISO 7816-1, ISO 10373-1/-3, ISO 7810, ISO 14443	ISO 7816-1, ISO 10373-1/-3, ISO 7810, ISO 14443	ISO 7816-1, ISO 10373-1/-3, ISO 7810, ISO 14443
Derivatives	–	–	–	Au surface, Pd surface
Delivery form	Tape on Reel	Tape on Reel	Tape on Reel	Tape on Reel
Main applications	Payment, government identification	Payment, government identification, transport ticketing	Access control, transport ticketing	Authentication, government identification, payment

S-COM8.6 Coil on Module	S-COM8.4 Coil on Module new	T-M8.8	P-M8.4
Dual-interface module, 6 CB contacts, inductive coupling	Dual-interface module, 6 CB contacts, inductive coupling	Standard dual-interface module, 2 antenna contacts, 8 CB contacts	Dual-interface module, mold, 2 antenna contacts, 8 CB contacts, epoxy tape, wire bond
14.25 mm	9.5 mm	14.25 mm	14.25 mm
13 x 11.8 mm	11 x 8.3 mm	13 x 11.8 mm	13 x 11.8 mm
max. 420 µm	max. 420 µm	max. 580 µm	max. 620 µm
NiAu	NiAu	NiAu	NiAu
ISO 7816-1, ISO 10373-1/-3, ISO 7810, ISO 14443	ISO 7816-1, ISO 10373-1/-3, ISO 7810, ISO 14443	ISO 7816-1, ISO 10373-1/-3, ISO 7810, ISO 14443	ISO 7816-1, ISO 10373-1/-3, ISO 7810, ISO 14443
Au surface, Pd surface	Au surface, Pd surface	Au surface, Pd surface	Au surface, Pd surface
Tape on Reel	Tape on Reel	Tape on Reel	Tape on Reel
Payment	Payment	Payment, government identification	Payment, government identification

Modules

	SMD packages			
Product name	**TSNP-6-9**	**TSSOP-28-2**	**VQFN-8-1, -2, -4/MFF2**	**VQFN-10-2**
Picture				
Product description	Small outline no leads	Thin shrink small outline, gullwing lead	Small outline no leads, exposed pad	Small outline no leads, exposed pads
Pitch	0.5 mm	0.65 mm	1.27 mm	1.27 mm
Dimensions	1.1 x 1.5 mm	9.7 x 4.4 mm	5 x 6 mm	6 x 5 mm
Thickness	0.375 mm	max. 1.1 mm	max. 900 µm	max. 900 µm
Contact surface	Sn	Sn	NiPd-AuAg	NiPd-AuAg
ISO reference	–	–	–	–
Derivatives	–	–	–	–
Delivery form	Tape & Reel	Tape & Reel	Tape & Reel	Tape & Reel
Main applications	Authentication	Trusted Computing	Automotive M2M, industrial M2M, consumer M2M, authentication	Authentication, Pay TV

VQFN-32-13	USON-8-1, -4	USON-8-3	USON-10-1	USON-10-2
Quad flat no leads, exposed pad	Small outline no leads, exposed bar pad	Small outline no-leads, exposed pad	Small outline no leads, exposed bar pad	Small outline no leads, exposed pad
0.5 mm	0.5 mm	1.0 mm	0.5 mm	0.5 mm
5 x 5 mm	2.5 x 2.5 mm	4.2 x 4.0 mm	3 x 3 mm	3 x 3 mm
max. 900 µm	max. 600 µm	max. 600 µm	max. 600 µm	max. 600 µm
NiPd-AuAg	NiPd-AuAg	NiPd-AuAg	NiPd-AuAg	NiPd-AuAg
–	–	–	–	–
–	–	–	–	–
Tape & Reel	Tape & Reel	Tape & Reel	Tape & Reel	Tape & Reel
Embedded secure element, Trusted Computing, USB tokens	Authentication	Authentication	Authentication	Authentication

Modules

	SMD packages
Product name	**WFWLB-16-3**
Picture	
Product description	Chip scale package, solder ball array
Pitch	0.5 mm
Dimensions	2.72 x 2.55 mm
Thickness	max. 700 µm
Contact surface	SnAgCu
ISO reference	–
Derivatives	–
Delivery form	Tape & Reel
Main applications	Near-field communication, embedded secure element, authentication

Preassembly

	Preassembly		
Product name	**Bumping NiAu**	**Stud Bump**	**Wafer Thinning and Dicing**
Picture			
Product description	NiAu bump on the pad	Gold bump on the pad	Bare die delivery on UV foil in wafer frame
Thickness	–	–	55 µm, 150 µm other thicknesses on request
Mapping	Based on SEMI	Based on SEMI	Based on SEMI
Delivery form	Sawn wafer on UV foil	Sawn wafer on UV foil	Sawn wafer on UV foil
Documents	Specification NiAu Bumping, Chip Delivery Specification for 8” Wafer, General Issue and Product-Specific Issue	Specification Stud Bumping, Chip Delivery Specification for 8”/12” Wafer, General Issue and Product-Specific Issue	Chip Delivery Specification for 8”/12” Wafer, General Issue and Product-Specific Issue

Notes

Notes

Service Hotline

Infineon offers its toll-free 0800/4001 service hotline as one central number, available 24/7 in English, Mandarin and German.

- Germany ..... 0800 951 951 951 (German/English)
- China, mainland ..... 4001 200 951 (Mandarin/English)
- India ..... 000 800 4402 951 (English)
- USA ..... 1-866 951 9519 (English/German)
- Other countries ..... 00* 800 951 951 951 (English/German)
- Direct access ..... +49 89 234-0 (interconnection fee, German/English)

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