



## Infineon Chip Card & Security ICs Portfolio

Security for the connected world

[www.infineon.com/ccs](http://www.infineon.com/ccs)



The Integrity Guard concept marks the dawn of the Digital Security Era. The SLE 78 controller family with Integrity Guard radicalizes design-in by easing software implementation so designers can bring secure products to market faster than ever.

Infineon's security controllers with Integrity Guard allow meeting the requirements for truly long lasting security. With its unique encrypted CPU, Integrity Guard already became the standard for long-lasting secure eGovernment applications such as for electronic travel documents that are in use for more than ten years.

#### **INTEGRITY GUARD comprises the following unique features**

- Fully encrypted data path leaving no plaintext on the chip
- Calculation with encrypted data in the CPU itself
- Comprehensive digital error detection
- Self-checking dual CPUs



SOLID FLASH™ – leading the industry trend towards flexible memory based on Infineon's unique quality track record and outstanding security expertise.

The flexibility of Flash memory is a must and a clear trend in the chip card industry moving away from outdated ROM products. Combining Infineon's Automotive Flash leadership with its unrivalled security expertise, SOLID FLASH™ products are certified from EMVCo up to CC EAL6+ (high) and offer the advantages of a flexible memory for the whole value chain.

#### **Highlights of SOLID FLASH™**

- Flexibility combined with highest quality and security
- Shorter software development cycles
- Quick reaction to market requirements



CIPURSE™ – a truly open security standard for public transportation that enables a projectable investment for the ecosystem and a long term competitive market environment.





#### **The CIPURSE™ open 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 life cycle management functions
- Includes advanced security mechanisms such as a unique cryptographic protocol for inherent protection against differential power analysis (DPA) and differential fault attacks (DFA)
- Offers three distinctive development profiles enabling a complete range of products suitable for tickets, cards and mobile phones







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## Payment

	Dual-interface & Contactless Security Controller <sup>1)</sup>			
Product name	SLE 77CLFX1367P(M)  SOLID FLASH™	SLE 77CLFX1567P(M)  SOLID FLASH™	SLE 77CLFX1847P(M)  SOLID FLASH™	SLE 77CLFX2007P(M)  SOLID FLASH™
Product description	Dual-interface and contactless security cryptocontroller	Dual-interface and contactless security cryptocontroller	Dual-interface and contactless security cryptocontroller	Dual-interface and contactless security cryptocontroller
Interfaces	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface, optimized for Sub-ID1	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface, optimized for Sub-ID1	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface, optimized for Sub-ID1	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface, optimized for Sub-ID1
MEMORY	136kByte SOLID FLASH, 6kByte RAM	156kByte SOLID FLASH, 6kByte RAM	184kByte SOLID FLASH, 6kByte RAM	200kByte SOLID FLASH, 6kByte RAM
CPU	16-bit	16-bit	16-bit	16-bit
Crypto coprocessor symmetrical	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
Crypto coprocessor asymmetrical	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, ECC up to 521-bit
Ambient temperature	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
Delivery forms	Contactless module, dual interface module	Contactless module, dual interface module	Contactless module, dual interface module	Contactless module, dual interface module
Typical applications	EMV DDA, EMV CDA, Global Platform / Java, Loyalty, ePurse	EMV DDA, EMV CDA, Global Platform / Java, Loyalty, ePurse	EMV DDA, EMV CDA, Global Platform / Java, Loyalty, ePurse	EMV DDA, EMV CDA, Global Platform / Java, Loyalty, ePurse
Certification level	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo

<sup>1)</sup> Supporting CIPURSETM for all contactless and NFC applications

SLE 77CLFX2407P(M)  SOLID FLASH™	SLE 78CLX360P(M)  INTEGRITY GUARD	SLE 78CLX480P(M)  INTEGRITY GUARD	SLE 78CLFX2404P(M)  INTEGRITY GUARD  SOLID FLASH™	SLE 77CLFX2400P(M)  SOLID FLASH™
Dual-interface and contactless security cryptocontroller	Dual-interface and contactless security cryptocontroller	Dual-interface and contactless security cryptocontroller	Dual-interface and contactless security cryptocontroller	Dual-interface and contactless security cryptocontroller
ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface, optimized for Sub-ID1	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface, optimized for Sub-ID1	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface
240kByte SOLID FLASH, 6kByte RAM	36kByte EEPROM, 280kByte ROM, 8kByte RAM	48kByte EEPROM, 280kByte ROM, 8kByte RAM	240kByte SOLID FLASH, 6kByte RAM	240kByte SOLID FLASH, 6kByte RAM
16-bit	Dual 16-bit	Dual 16-bit	Dual 16-bit	16-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, AES up to 256-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, ECC up to 521-bit	RSA up to 4096-bit, ECC up to 521-bit
-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
Contactless module, dual interface module	Contactless module, dual interface module	Contactless module, dual interface module	Contactless module, dual interface module	Contactless module, dual interface module
EMV DDA, EMV CDA, Global Platform / Java, Loyalty, ePurse	EMV DDA, EMV CDA, Global Platform / Java, Loyalty, ePurse, eSignature	EMV DDA, EMV CDA, Global Platform / Java, Loyalty, ePurse, eSignature	EMV DDA, EMV CDA, Global Platform / Java, Loyalty, ePurse, eSignature	EMV DDA, EMV CDA, Global Platform / Java, Loyalty, ePurse
CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo	CC EAL6+ high/ EMVCo	CC EAL5+ high/ EMVCo

## Payment

	Dual-interface & Contactless Security Controller <sup>1)</sup>	
Product name	SLE 78CLFX2406P(M)  INTEGRITY GUARD  SOLID FLASH™	SLE 78CLFX3006P(M)  INTEGRITY GUARD  SOLID FLASH™
Product description	Dual-interface and contactless security cryptocontroller	Dual-interface and contactless security cryptocontroller
Interfaces	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface, optimized for Sub-ID1	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface, optimized for Sub-ID1
MEMORY	240kByte SOLID FLASH, 6kByte RAM	300kByte SOLID FLASH, 6kByte RAM
CPU	Dual 16-bit	Dual 16-bit
Crypto coprocessor symmetrical	DES, 3DES, AES up to 256-bit	DES, 3DES, AES up to 256-bit
Crypto coprocessor asymmetrical	RSA up to 4096-bit, ECC up to 521-bit	RSA up to 4096-bit, ECC up to 521-bit
Ambient temperature	-25 to +85°C	-25 to +85°C
Delivery forms	Contactless module, dual interface module	Contactless module, dual interface module
Typical applications	EMV DDA, EMV CDA, Global Platform / Java, Loyalty, ePurse, eSignature	EMV DDA, EMV CDA, Global Platform / Java, Loyalty, ePurse, eSignature
Certification level	CC EAL6+ high/ EMVCo	CC EAL6+ high/ EMVCo





<sup>1)</sup> Supporting CIPURSETM for all contactless and NFC applications

	Contact-based Security Controller			
Product name	SLE 77CF800S  SOLID FLASH™	SLE 77CF1000S  SOLID FLASH™	SLE 77CF1200S  SOLID FLASH™	SLE 77CFX1360P  SOLID FLASH™
Product description	Security controller	Security controller	Security controller	Security cryptocontroller
Interfaces	ISO 7816	ISO 7816	ISO 7816	ISO 7816
MEMORY	80kByte SOLID FLASH, 4kByte RAM	100kByte SOLID FLASH, 4kByte RAM	120kByte SOLID FLASH, 4kByte RAM	136kByte SOLID FLASH, 6kByte RAM
CPU	16-bit	16-bit	16-bit	16-bit
Crypto coprocessor symmetrical	DES, AES	DES, AES	DES, AES	DES, 3DES, AES up to 256-bit
Crypto coprocessor asymmetrical	–	–	–	RSA up to 4096-bit, ECC up to 521-bit
Ambient temperature	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
Delivery forms	Contact-based module	Contact-based module	Contact-based module	Contact-based module
Typical applications	EMV SDA, Loyalty	EMV SDA, Loyalty	EMV SDA, Loyalty	EMV DDA, EMV CDA, Global Platform / Java, Loyalty, ePurse
Certification level	EMVCo	EMVCo	EMVCo	CC EAL5+ high/ EMVCo

## Payment

	Contact-based Security Controller			
Product name	SLE 77CFX1560P  SOLID FLASH™	SLE 77CFX1840P  SOLID FLASH™	SLE 77CFX2000P  SOLID FLASH™	SLE 77CFX2400P  SOLID FLASH™
Product description	Security cryptocontroller	Security cryptocontroller	Security cryptocontroller	Security cryptocontroller
Interfaces	ISO 7816	ISO 7816	ISO 7816	ISO 7816
MEMORY	156kByte SOLID FLASH, 6kByte RAM	184kByte SOLID FLASH, 6kByte RAM	200kByte SOLID FLASH, 6kByte RAM	240kByte SOLID FLASH, 6kByte RAM
CPU	16-bit	16-bit	16-bit	16-bit
Crypto coprocessor symmetrical	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
Crypto coprocessor asymmetrical	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, ECC up to 521-bit
Ambient temperature	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
Delivery forms	Contact-based module	Contact-based module	Contact-based module	Contact-based module
Typical applications	EMV DDA, EMV CDA, Global Platform / Java, Loyalty, ePurse	EMV DDA, EMV CDA, Global Platform / Java, Loyalty, ePurse	EMV DDA, EMV CDA, Global Platform / Java, Loyalty, ePurse	EMV DDA, EMV CDA, Global Platform / Java, Loyalty, ePurse
Certification level	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo



SLE 78CX360P  INTEGRITY GUARD	SLE 78CX480P  INTEGRITY GUARD	SLE 78CFX2404P  INTEGRITY GUARD  SOLID FLASH™ <span style="background-color: #0056b3; color: white; padding: 2px 5px; font-weight: bold;">new</span>
Security cryptocontroller	Security cryptocontroller	Security cryptocontroller
ISO 7816	ISO 7816	ISO 7816
36kByte EEPROM, 224kByte ROM, 8kByte RAM	48kByte EEPROM, 224kByte ROM, 8kByte RAM	240kByte SOLID FLASH, 6kByte RAM
Dual 16-bit	Dual 16-bit	Dual 16-bit
3DES, AES up to 256-bit	3DES, AES up to 256-bit	DES, 3DES, AES up to 256-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
-25 to +85°C	-25 to +85°C	-25 to +85°C
Contact-based module	Contact-based module	Contact-based module
EMV DDA, EMV CDA, Global Platform / Java, Loyalty, ePurse, eSignature	EMV DDA, EMV CDA, Global Platform / Java, Loyalty, ePurse, eSignature	EMV DDA, EMV CDA, Global Platform / Java, Loyalty, ePurse, eSignature
CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo	CC EAL6+ high/ EMVCo






## Mobile Communication

	SIM & UICCs			
Product name	SLC 14MCO256 <span style="float: right;">new</span>	SLC 14MCO288 <span style="float: right;">new</span>	SLC 14MCO312 <span style="float: right;">new</span>	SLC 14MCO340 <span style="float: right;">new</span>
Product description	32-bit SIM-card controller	32-bit SIM-card controller	32-bit SIM-card controller	32-bit SIM-card controller
Interfaces	ISO 7816	ISO 7816	ISO 7816	ISO 7816
MEMORY	256kByte FLASH, 10kByte RAM	288kByte FLASH, 10kByte RAM	312kByte FLASH, 10kByte RAM	340kByte FLASH, 10kByte RAM
CPU	32-bit	32-bit	32-bit	32-bit
Crypto coprocessor symmetrical	–	–	–	–
Crypto coprocessor asymmetrical	–	–	–	–
Ambient temperature	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
Delivery forms	FCOS™ module, wafer sawn	FCOS™ module, wafer sawn	FCOS™ module, wafer sawn	FCOS™ module, wafer sawn
Typical applications	SIM & UICC	SIM & UICC	SIM & UICC	SIM & UICC
Certification level	–	–	–	–







SLC 14MCO384 <span style="float: right;">new</span>	SLC 14MCO420 <span style="float: right;">new</span>	SLC 14MCO480 <span style="float: right;">new</span>	SLE 76CF2564P	SLE 76CF2962P
32-bit SIM-card controller	32-bit SIM-card controller	32-bit SIM-card controller	16-bit SIM-card controller	16-bit SIM-card controller
ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816
384kByte FLASH, 12kByte RAM	420kByte FLASH, 12kByte RAM	480kByte FLASH, 12kByte RAM	256kByte FLASH, 9kByte RAM	296kByte FLASH, 9kByte RAM
32-bit	32-bit	32-bit	16-bit	16-bit
-	-	-	-	-
-	-	-	-	-
-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
FCOST™ module, wafer sawn	FCOST™ module, wafer sawn	FCOST™ module, wafer sawn	FCOST™ module, wirebond module, Wafer sawn	FCOST™ module, wirebond module, Wafer sawn
SIM & UICC	SIM & UICC	SIM & UICC	SIM & UICC	SIM & UICC
-	-	-	-	-





## Mobile Communication

	SIM & UICCs			
Product name	SLE 76CF3202P	SLE 76CF3442P	SLE 76CF3602P	SLE 76CF4002P
Product description	16-bit SIM-card controller	16-bit SIM-card controller	16-bit SIM-card controller	16-bit SIM-card controller
Interfaces	ISO 7816	ISO 7816	ISO 7816	ISO 7816
MEMORY	320kByte FLASH, 9kByte RAM	344kByte FLASH, 9kByte RAM	360kByte FLASH, 9kByte RAM	400kByte FLASH, 12kByte RAM
CPU	16-bit	16-bit	16-bit	16-bit
Crypto coprocessor symmetrical	–	–	–	–
Crypto coprocessor asymmetrical	–	–	–	–
Ambient temperature	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
Delivery forms	FCOST™ module, wirebond module, wafer sawn	FCOST™ module, wirebond module, wafer sawn	FCOST™ module, wirebond module, wafer sawn	FCOST™ module, wirebond module, wafer sawn
Typical applications	SIM & UICC	SIM & UICC	SIM & UICC	SIM & UICC
Certification level	–	–	–	–

SLE 76CF4480P	SLE 76CF5120P	SLE 97CNFX8000P(E)  SOLID FLASH™  NFC Optimized	SLE 97CNFX1M00P(E)  SOLID FLASH™  NFC Optimized	SLE 97CUNFX8000P(E)  SOLID FLASH™
16-bit SIM-card controller	16-bit SIM-card controller	32-bit SWP SIM-card Security Cryptocontroller	32-bit SWP SIM-card Security Cryptocontroller	32-bit USB and SWP SIM-card Security Cryptocontroller
ISO 7816	ISO 7816	ISO 7816, SWP (Mifare compatible)	ISO 7816, SWP (Mifare compatible)	ISO 7816, SWP (Mifare compatible), USB
–	–	–	–	–
16-bit	16-bit	32-bit	32-bit	32-bit
3DES, AES up to 256-bit	3DES, AES up to 256-bit	3DES, AES up to 256-bit	3DES, AES up to 256-bit	3DES, AES up to 256-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
-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
FCOST™ module, wirebond module, wafer sawn	FCOST™ module, wirebond module, wafer sawn	FCOST™ module, wirebond module, wafer sawn	FCOST™ module, wirebond module, wafer sawn	FCOST™ module, wirebond module, wafer sawn
SIM & UICC	SIM & UICC	SWP SIM/UICC (NFC)	SWP SIM/UICC (NFC)	USB SIM/UICC
–	–	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo

## Mobile Communication

	SIM & UICCs		Machine-to-Machine (M2M) Cellular	
Product name	SLE 97CUNFX1M00P(E)  SOLID FLASH™	SLE 78CLFX4000P(M)  INTEGRITY GUARD  Optimized  SOLID FLASH™	SLM 76CF2561P  SOLID FLASH™	SLM 76CF3201P  SOLID FLASH™
Product description	32-bit USB and SWP SIM-card Security Cryptocontroller	Dual-interface SIM Security Cryptocontroller	Security controller with extended specification for M2M applications	Security controller with extended specification for M2M applications
Interfaces	ISO 7816, SWP (Mifare compatible), USB	ISO 18092 passive mode, ISO 14443 A/B, ISO 7816, Mifare compatible Interface	ISO 7816	ISO 7816
MEMORY	1MByte SOLID FLASH, 32kByte RAM	404kByte SOLID FLASH, 8kByte RAM	256kByte SOLID FLASH, 8kByte RAM	320kByte SOLID FLASH, 8kByte RAM
CPU	32-bit	Dual 16-bit	16-bit	16-bit
Crypto coprocessor symmetrical	3DES, AES up to 256-bit	DES, 3DES, AES up to 256-bit	3DES, AES up to 256-bit	3DES, AES up to 256-bit
Crypto coprocessor asymmetrical	RSA up to 4096-bit, ECC up to 521-bit	RSA up to 4096-bit, ECC up to 521-bit	–	–
Ambient temperature	-25 to +85°C	-25 to +85°C	-40 to +105°C	-40 to +105°C
Delivery forms	FCOS™ module, wirebond module, wafer sawn	Dual interface module, wafer sawn	VQFN-8, P-M2M5.1, wafer sawn	VQFN-8, P-M2M5.1, wafer sawn
Typical applications	USB SIM/UICC	SIMpass™, Dual I/F NFC SIM	Industrial M2M, Consumer M2M	Industrial M2M, Consumer M2M
Certification level	CC EAL5+ high/ EMVCo	CC EAL6+ high/ EMVCo	–	–





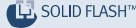



SLM 76CF3601P  SOLID FLASH™	SLM 76CF5120P  SOLID FLASH™	SLI 76CF3600P  SOLID FLASH™	SLI 76CF5120P  SOLID FLASH™
Security controller with extended specification for M2M applications	Security controller with extended specification for M2M applications	Security controller with extended specification for M2M applications	Security controller with extended specification for M2M applications
ISO 7816	ISO 7816	ISO 7816	ISO 7816
360kByte SOLID FLASH, 8kByte RAM	504kByte SOLID FLASH, 12kByte RAM	360kByte SOLID FLASH, 8kByte RAM	504kByte SOLID FLASH, 12kByte RAM
16-bit	16-bit	16-bit	16-bit
3DES, AES up to 256-bit	3DES, AES up to 256-bit	3DES, AES up to 256-bit	3DES, AES up to 256-bit
–	–	–	–
-40 to +105°C	-40 to +105°C	-40 to +105°C	-40 to +105°C
VQFN-8, P-M2M5.1, wafer sawn	VQFN-8, P-M2M5.1, wafer sawn	VQFN-8	VQFN-8
Industrial M2M, Consumer M2M	Industrial M2M, Consumer M2M	Specialized Electronic Equipment, Industrial M2M, Consumer M2M, Automotive M2M	Specialized Electronic Equipment, Industrial M2M, Consumer M2M, Automotive M2M
–	–	–	–

## Mobile Communication

	Telecom ICs	
Product name	SLE 6636	SLE 4406SP
Product description	Intelligent 237-bit EEPROM counter with security logic and security authentication	Intelligent 128-bit EEPROM counter with security logic
Counter	> 20,000 count units, support of anti-tearing	> 20,000 count units
ROM	24-bit	24-bit
PROM	177-bit	72-bit
EEPROM	36-bit	32-bit
Security features	locked chip coding, transport code, Authentication for basic security with 1 or 2 keys, optional cipher block chaining, security logic	locked chip coding, transport code, Security logic
Min. write/erase time	3ms/3ms	3ms/3ms
Operating voltage	5V	5V
Max. supply current	1mA (typ. 400µA)	1mA
Ambient temperature	-40 to +80°C	-40 to +80°C
Endurance	100,000	100,000
Retention time, minimum	30 years	30 years
Delivery forms	MFC 3.1 (FCOST™), module M3, wafer sawn	MFC 3.1 (FCOST™), module M3, wafer sawn
Tools	EVA-kit	EVA-kit
Typical applications	Prepaid Phone Card, Vending, Brand Protection, Metering	Prepaid Phone Card, Vending









## Near-Field-Communication






	SWP UICCs <sup>1)</sup>		Embedded Secure Elements <sup>1)</sup>	
Product name	SLE 97CNFX8000P(E)  SOLID FLASH™  Optimized	SLE 97CNFX1M00P(E)  SOLID FLASH™  Optimized	SLE 97CNFX8000PE  SOLID FLASH™  Optimized	SLE 97CNFX1M00PE  SOLID FLASH™  Optimized
Product description	32-bit SWP Security Cryptocontroller	32-bit SWP Security Cryptocontroller	32-bit SWP Security Cryptocontroller designed for Embedded SE	32-bit SWP Security Cryptocontroller designed for Embedded SE
Interfaces	ISO 7816, SWP (Mifare compatible)	ISO 7816, SWP (Mifare compatible)	ISO 7816, SWP (Mifare compatible)	ISO 7816, SWP (Mifare compatible)
MEMORY	800kByte SOLID FLASH, 32kByte RAM	1MByte SOLID FLASH, 32kByte RAM	800kByte SOLID FLASH, 32kByte RAM	1 MByte SOLID FLASH, 32kByte RAM
CPU	32-bit	32-bit	32-bit	32-bit
Crypto coprocessor symmetrical	3DES, AES up to 256-bit	3DES, AES up to 256-bit	3DES, AES up to 256-bit	3DES, AES up to 256-bit
Crypto coprocessor asymmetrical	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, ECC up to 521-bit
Ambient temperature	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
Delivery forms	FCOS™ module, wirebond module, wafer sawn	FCOST™ module, wirebond module, wafer sawn	SMD, chip scale package, wafer sawn	SMD, chip scale package, wafer sawn
Typical applications	SWP Micro SD, SWP SIM & UICC (NFC), Mobile Payment	SWP Micro SD, SWP SIM & UICC (NFC), Mobile Payment	Embedded Secure Element, Mobile Payment	Embedded Secure Element, Mobile Payment
Certification level	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo

<sup>1)</sup> Supporting CIPURSE™ for all contactless and NFC applications




## Near-Field-Communication















	Embedded Secure Elements <sup>1)</sup>		
Product name	SLE 97CNFX8004PE  SOLID FLASH™  NFC Optimized	SLE 97CNFX1M04PE  SOLID FLASH™  NFC Optimized	SLE 97CSNFX1M00PE  SOLID FLASH™  NFC Optimized
Product description	32-bit SWP Security Cryptocontroller designed for Embedded SE	32-bit SWP Security Cryptocontroller designed for Embedded SE	32-bit SWP Security Cryptocontroller designed for Embedded SE
Interfaces	GPIOs, ISO 7816, SWP (Mifare compatible)	GPIOs, ISO 7816, SWP (Mifare compatible)	ISO 7816, SWP (Mifare compatible), SPI
MEMORY	800kByte SOLID FLASH, 32kByte RAM	1 MByte SOLID FLASH, 32kByte RAM	1 MByte SOLID FLASH, 32kByte RAM
CPU	32-bit	32-bit	32-bit
Crypto coprocessor symmetrical	3DES, AES up to 256-bit	3DES, AES up to 256-bit	3DES, AES up to 256-bit
Crypto coprocessor asymmetrical	RSA up to 2048-bit, ECC up to 521-bit	RSA up to 2048-bit, ECC up to 521-bit	RSA up to 2048-bit, ECC up to 521-bit
Ambient temperature	-25 to +85°C	-25 to +85°C	-25 to +85°C
Delivery forms	SMD, chip scale package, wafer sawn	SMD, chip scale package, wafer sawn	SMD, chip scale package, wafer sawn
Typical applications	Embedded Secure Element, Mobile Payment	Embedded Secure Element, Mobile Payment	Embedded Secure Element, Mobile Payment, NFC SD (and different interfaces)
Certification level	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo


<sup>1)</sup> Supporting CIPURSE™ for all contactless and NFC applications

Boosted NFC Secure Elements <sup>1)</sup>		
Product name	SLE 77CAFX2400P(M)  SOLID FLASH™  NFC Optimized	SLE 78CAFX4000P(M)  INTEGRITY GUARD  NFC Optimized  SOLID FLASH™
Product description	16-bit Security Cryptocotroller designed for Boosted NFC	Dual 16-bit Security Cryptocontroller designed for Boosted NFC
Interfaces	ACLB, ISO 7816, Mifare compatible Interface	ACLB, ISO 7816, Mifare compatible Interface
MEMORY	240kByte SOLID FLASH, 6kByte RAM	400kByte SOLID FLASH, 8kByte RAM
CPU	16-bit	Dual 16-bit
Crypto coprocessor symmetrical	3DES	3DES
Crypto coprocessor asymmetrical	RSA up to 4096-bit, ECC up to 521-bit	RSA up to 4096-bit, ECC up to 521-bit
Ambient temperature	-25 to +85°C	-25 to +85°C
Delivery forms	Wafer sawn	Wafer sawn
Typical applications	Boosted NFC MicroSD, Mobile Payment	Boosted NFC MicroSD, Boosted NFC SIM, Mobile Payment
Certification level	CC EAL5+ high/ EMVCo	CC EAL6+ high/ EMVCo






## Near-Field-Communication


	NFC Tags		
Product name	SLE 66R16P  Ready	SLE 66R32P  Ready	SLE 66R01PN  Ready
Product description	Plain memory, 2560Byte EEPROM	Plain memory, 5120Byte EEPROM	Intelligent 1216bit EEPROM with pre-configured NFC memory
Interface	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 T2T sector (up to 1kByte), pre-configured NFC memory	1 fixed sector T2T sector (up to 1kByte), pre-configured NFC memory	1 fixed sector
Counter	Up to 65,536 units, support of anti-tearing	Up to 65,536 units, support of anti-tearing	16-bit counter with anti-tearing support
EEPROM - user	2024Byte	4072Byte	128Byte
EEPROM - administration	536Byte	1048Byte	24Byte
Security features	Unique serial number, individual page locking	Unique serial number, individual page locking	Unique serial number, 32-bit password protection for read and/or write access, block locking, individual page locking, password retry counter
Distance (read/write)	Typically up to 10cm and above	Typically up to 10cm and above	Typically up to 10cm and above
Data rate	106kbit/s	106kbit/s to card up to 848kbit/s to reader	106kbit/s
Endurance	100,000	100,000	10,000
Retention time, minimum	10 years	10 years	5 years
Delivery forms	MCC2, NiAu-bump, MCC8	MCC2, NiAu-bump, MCC8	NiAu-bump, wafer
Tools	Evaluation Kit Contactless	Evaluation Kit Contactless	Evaluation Kit Contactless
Typical applications	Device Pairing, Smart Posters, Consumer Good Information	Device Pairing, Smart Posters, Consumer Good Information	Device Pairing, Smart Posters, Consumer Good Information

	NFC Bundles			
Product name	SLE 97144SE  INTEGRITY GUARD	SLE 97400SE   INTEGRITY GUARD  NFC Optimized  SOLID FLASH™  NFC Secure	SLE 97144SD  INTEGRITY GUARD  NFC Optimized  NFC Secure	SLE 97400SD   INTEGRITY GUARD  NFC Optimized  SOLID FLASH™  NFC Secure
Product description	Security Controller (DCLB Interface) incl. OS	Security Controller (DCLB Interface) incl. OS	Security Controller (ISO7816 & Contactless Interface) incl. OS	Security Controller (ISO7816 & Contactless Interface) incl. OS
Interfaces	DCLB, ISO 7816	DCLB, ISO 7816	Contactless Interface, ISO 7816	Contactless Interface, ISO 7816
MEMORY	144kByte EEPROM, 288kByte ROM, 8kByte RAM	400kByte SOLID FLASH, 8kByte RAM	144kByte EEPROM, 280kByte ROM, 8kByte RAM	400kByte SOLID FLASH, 8kByte RAM
CPU	Dual 16-bit	Dual 16-bit	Dual 16-bit	Dual 16-bit
Crypto coprocessor symmetrical	3DES, AES up to 256-bit	3DES, AES up to 256-bit	3DES, AES up to 256-bit	3DES, AES up to 256-bit
Crypto coprocessor asymmetrical	RSA up to 2048-bit, ECC up to 521-bit	RSA up to 2048-bit, ECC up to 521-bit	RSA up to 2048-bit, ECC up to 521-bit	RSA up to 2048-bit, ECC up to 521-bit
Ambient temperature	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
Delivery forms	Wafer sawn	SMD, wafer sawn	SMD, wafer sawn	SMD, wafer sawn
Typical applications	Embedded Secure Element	Embedded Secure Element, Mobile Payment	Embedded Secure Element, NFC SD (and different interfaces)	Embedded Secure Element, NFC SD (and different interfaces), Mobile Payment
Certification level	EMVCo	EMVCo, Global Platform	EMVCo	EMVCo, Global Platform

	Dual-interface & Contactless Security Controller <sup>1)</sup>			
Product name	SLE 66CLX800PE (M/S)	SLE 66CLX1440PE (M/S)	SLE 66CLX1600PE (M/S)	SLE 78CLX360P 
Product description	Dual-interface and contactless security cryptocontroller	Dual-interface and contactless security cryptocontroller	Dual-interface and contactless security cryptocontroller	Dual-interface and contactless security cryptocontroller
Interfaces	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface
MEMORY	80kByte (78kByte + 1kByte for M) EEPROM, 240kByte (236kByte) ROM, 6kByte XRAM, 700Byte Crypto, 256Byte IRAM RAM	144kByte (144kByte + 1kByte for M) EEPROM, 240kByte (236kByte) ROM, 6kByte XRAM, 700Byte Crypto, 256Byte IRAM RAM	160kByte EEPROM, 240kByte (236kByte) ROM, 6kByte XRAM, 700Byte Crypto, 256Byte IRAM RAM	36kByte EEPROM, 280kByte ROM, 8kByte RAM
CPU	8-bit/16-bit	8-bit/16-bit	8-bit/16-bit	Dual 16-bit
Crypto coprocessor symmetrical	3DES	3DES	3DES	DES, 3DES, AES up to 256-bit
Crypto coprocessor asymmetrical	RSA up to 2048-bit, ECC up to 521-bit	RSA up to 2048-bit, ECC up to 521-bit	RSA up to 2048-bit, ECC up to 521-bit	RSA up to 4096-bit, ECC up to 521-bit
Ambient temperature	-25 to +70°C	-25 to +70°C	-25 to +70°C	-25 to +85°C
Delivery forms	Dual interface module, contactless module, wafer sawn	Dual interface module, contactless module, wafer sawn	Dual interface module, contactless module, wafer sawn	Dual interface module, contactless module, wafer sawn
Typical applications	National eID, ePassport, eHealth card / eSocial card, eDriver's License, eVisa, eResidence Permit, eVehicle Registration Card / eCar Registration, eSignature	National eID, ePassport, eHealth card / eSocial card, eDriver's License, eVisa, eResidence Permit, eVehicle Registration Card / eCar Registration, eSignature	National eID, ePassport, eHealth card / eSocial card, eDriver's License, eResidence Permit, 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
Certification level	CC EAL5+ high	CC EAL5+ high	CC EAL5+ high	CC EAL5+ high/ EMVCo











<sup>1)</sup> Supporting CIPURSETM for all contactless and NFC applications

SLE 78CLX480P  INTEGRITY GUARD	SLE 78CLX802P  INTEGRITY GUARD	SLE 78CLX800P  INTEGRITY GUARD	SLE 78CLX1280P  INTEGRITY GUARD	SLE 78CLX1440P  INTEGRITY GUARD
Dual-interface and contactless security cryptocontroller	Dual-interface and contactless security cryptocontroller	Dual-interface and contactless security cryptocontroller	Dual-interface and contactless security cryptocontroller	Dual-interface and contactless security cryptocontroller
ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface
48kByte EEPROM, 280kByte ROM, 8kByte RAM	80kByte EEPROM, 216kByte ROM, 8kByte RAM	80kByte EEPROM, 280kByte ROM, 8kByte RAM	128kByte EEPROM, 280kByte ROM, 8kByte RAM	144kByte EEPROM, 280kByte ROM, 8kByte RAM
Dual 16-bit	Dual 16-bit	Dual 16-bit	Dual 16-bit	Dual 16-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, AES up to 256-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, ECC up to 521-bit	RSA up to 4096-bit, ECC up to 521-bit
-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
Dual interface module, contactless module, wafer sawn	Dual interface module, contactless module, wafer sawn	Dual interface module, contactless module, wafer sawn	Dual interface module, contactless module, wafer sawn	Dual interface module, contactless module, wafer sawn
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	National eID, ePassport, eHealth card / eSocial card, eDriver's License, eVisa, eResidence Permit, eVehicle Registration Card / eCar Registration, eSignature
CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo







Dual-interface & Contactless Security Controller <sup>1)</sup>				
Product name	SLE 78CLX1600P  INTEGRITY GUARD	SLE 77CLF1001P  SOLID FLASH™ <span style="background-color: #0056b3; color: white; padding: 2px 5px; font-weight: bold;">new</span>	SLE 77CLFX2000P  SOLID FLASH™	SLE 77CLFX2400P  SOLID FLASH™
Product description	Dual-interface and contactless security cryptocontroller	Contactless security controller	Dual-interface and contactless security cryptocontroller	Dual-interface and contactless security cryptocontroller
Interfaces	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface	ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface
MEMORY	160kByte EEPROM, 280kByte ROM, 8kByte RAM	100kByte SOLID FLASH, 4kByte RAM	200kByte SOLID FLASH, 6kByte RAM	240kByte SOLID FLASH, 6kByte RAM
CPU	Dual 16-bit	16-bit	16-bit	16-bit
Crypto coprocessor symmetrical	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
Crypto coprocessor asymmetrical	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
Ambient temperature	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
Delivery forms	Dual interface module, contactless module, wafer sawn	Dual interface module, contactless module, wafer sawn	Dual interface module, contactless module, wafer sawn	Dual interface module, contactless module, wafer sawn
Typical applications	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, eDriver's License, eVehicle Registration Card / eCar Registration	National eID, eHealth card / eSocial card, eDriver's License	National eID, eHealth card / eSocial card, eDriver's License
Certification level	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo

<sup>1)</sup> Supporting CIPURSETM for all contactless and NFC applications










SLE 78CLFX2400P  INTEGRITY GUARD  SOLID FLASH™	SLE 78CLFX3000P  INTEGRITY GUARD  SOLID FLASH™	SLE 78CLFX300VP  INTEGRITY GUARD  SOLID FLASH™	SLE 78CLFX4000P  INTEGRITY GUARD  SOLID FLASH™	SLE 78CLFX400VP  INTEGRITY GUARD  SOLID FLASH™
Dual-interface and contactless security cryptocontroller	Dual-interface and contactless security cryptocontroller	Dual-interface and contactless security cryptocontroller	Dual-interface and contactless security cryptocontroller	Dual-interface and contactless security cryptocontroller
ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface, Very High Bit Rates (VHBR) with up to 6.8MBit/sec	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface, Very High Bit Rates (VHBR) with up to 6.8MBit/sec
240kByte SOLID FLASH, 8kByte RAM	300kByte SOLID FLASH, 8kByte RAM	300kByte SOLID FLASH, 8kByte RAM	404kByte SOLID FLASH, 8kByte RAM	404kByte SOLID FLASH, 8kByte RAM
Dual 16-bit	Dual 16-bit	Dual 16-bit	Dual 16-bit	Dual 16-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, AES up to 256-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, ECC up to 521-bit	RSA up to 4096-bit, ECC up to 521-bit
-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
Dual interface module, contactless module, wafer sawn	Dual interface module, contactless module, wafer sawn	Dual interface module, contactless module, wafer sawn	Dual interface module, contactless module, wafer sawn	Dual interface module, contactless module, wafer sawn
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	National eID, ePassport, eHealth card / eSocial card, eDriver's License, eVisa, eResidence Permit, eTachograph, eVehicle Registration Card / eCar Registration, eSignature
CC EAL6+ high/ EMVCo	CC EAL6+ high/ EMVCo	CC EAL6+ high/ EMVCo	CC EAL6+ high/ EMVCo	CC EAL6+ high/ EMVCo






## Secure eGovernment









	Dual-interface & Contactless Security Controller <sup>1)</sup>	
Product name	SLE 78CLFX5000PH   INTEGRITY GUARD  SOLID FLASH™	SLE 78CLFX500VPH   INTEGRITY GUARD  SOLID FLASH™
Product description	Dual-interface and contactless security cryptocontroller	Dual-interface and contactless security cryptocontroller
Interfaces	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface	ISO 7816, ISO 14443 A/B, Mifare compatible interface, Very High Bit Rates (VHBR) with up to 6.8MBit/sec
MEMORY	500kByte SOLID FLASH, 12kByte RAM	500kByte SOLID FLASH, 12kByte RAM
CPU	Dual 16-bit	Dual 16-bit
Crypto coprocessor symmetrical	DES, 3DES, AES up to 256-bit	DES, 3DES, AES up to 256-bit
Crypto coprocessor asymmetrical	RSA up to 4096-bit, ECC up to 521-bit	RSA up to 4096-bit, ECC up to 521-bit
Ambient temperature	-25 to +85°C	-25 to +85°C
Delivery forms	Dual interface module, contactless module, wafer sawn	Dual interface module, contactless module, wafer sawn
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
Certification level	CC EAL6+ high/ EMVCo	CC EAL6+ high/ EMVCo



<sup>1)</sup> Supporting CIPURSETM for all contactless and NFC applications

	Contact-based Security Controller			
Product name	SLE 77CF1000S  SOLID FLASH™	SLE 77CF1200S  SOLID FLASH™	SLE 77CFX1560P  SOLID FLASH™	SLE 77CFX1840P  SOLID FLASH™
Product description	Security controller	Security controller	Security cryptocontroller	Security cryptocontroller
Interfaces	ISO 7816	ISO 7816	ISO 7816	ISO 7816
MEMORY	100kByte SOLID FLASH, 4kByte RAM	120kByte SOLID FLASH, 4kByte RAM	156kByte SOLID FLASH, 6kByte RAM	184kByte SOLID FLASH, 6kByte RAM
CPU	16-bit	16-bit	16-bit	16-bit
Crypto coprocessor symmetrical	DES, AES	DES, AES	DES, 3DES, AES up to 256-bit	DES, 3DES, AES up to 256-bit
Crypto coprocessor asymmetrical	–	–	RSA up to 4096-bit, ECC up to 521-bit	RSA up to 4096-bit, ECC up to 521-bit
Ambient temperature	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
Delivery forms	Contact-based module, wafer sawn	Contact-based module, wafer sawn	Contact-based module, wafer sawn	Contact-based module, wafer sawn
Typical applications	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	National eID, eHealth card / eSocial card, eDriver's License, eTachograph, eVehicle Registration Card / eCar Registration
Certification level	EMVCo	EMVCo	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo

	Contact-based Security Controller			
Product name	SLE 77CFX2000P  SOLID FLASH™	SLE 77CFX2400P  SOLID FLASH™	SLE 78CX360P  INTEGRITY GUARD	SLE 78CX480P  INTEGRITY GUARD
Product description	Security cryptocontroller	Security cryptocontroller	Security cryptocontroller	Security cryptocontroller
Interfaces	ISO 7816	ISO 7816	ISO 7816	ISO 7816
MEMORY	200kByte SOLID FLASH, 6kByte RAM	240kByte SOLID FLASH, 6kByte RAM	36kByte EEPROM, 224kByte ROM, 8kByte RAM	48kByte EEPROM, 224kByte ROM, 8kByte RAM
CPU	16-bit	16-bit	Dual 16-bit	Dual 16-bit
Crypto coprocessor symmetrical	DES, 3DES, AES up to 256-bit	DES, 3DES, AES up to 256-bit	3DES, AES up to 256-bit	3DES, AES up to 256-bit
Crypto coprocessor asymmetrical	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, ECC up to 521-bit
Ambient temperature	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
Delivery forms	Contact-based module, wafer sawn	Contact-based module, wafer sawn	Contact-based module, wafer sawn	Contact-based module, wafer sawn
Typical applications	National eID, eHealth card / eSocial card, eDriver's License, eTachograph, eVehicle Registration Card / eCar Registration	National eID, eHealth card / eSocial card, eDriver's License, eTachograph, eVehicle Registration Card / eCar Registration	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
Certification level	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo

SLE 78CX802P  INTEGRITY GUARD	SLE 78CX800P  INTEGRITY GUARD	SLE 78CX1280P  INTEGRITY GUARD	SLE 78CX1440P  INTEGRITY GUARD	SLE 78CX1600P  INTEGRITY GUARD
Security cryptocontroller	Security cryptocontroller	Security cryptocontroller	Security cryptocontroller	Security cryptocontroller
ISO 7816	ISO 7816	ISO 7816	ISO 7816	ISO 7816
80kByte EEPROM, 224kByte ROM, 8kByte RAM	80kByte EEPROM, 288kByte ROM, 8kByte RAM	128kByte EEPROM, 288kByte ROM, 8kByte RAM	144kByte EEPROM, 288kByte ROM, 8kByte RAM	160kByte EEPROM, 288kByte ROM, 8kByte RAM
Dual 16-bit	Dual 16-bit	Dual 16-bit	Dual 16-bit	Dual 16-bit
3DES, AES up to 256-bit	3DES, AES up to 256-bit	3DES, AES up to 256-bit	3DES, AES up to 256-bit	3DES, AES up to 256-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, ECC up to 521-bit	RSA up to 4096-bit, ECC up to 521-bit
-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
Contact-based module, wafer sawn	Contact-based module, wafer sawn	Contact-based module, wafer sawn	Contact-based module, wafer sawn	Contact-based module, wafer sawn
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	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
CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo

	Contact-based Security Controller			
Product name	SLE 78CFX2400P  INTEGRITY GUARD  SOLID FLASH™	SLE 78CFX3000P  INTEGRITY GUARD  SOLID FLASH™	SLE 78CFX4000P  INTEGRITY GUARD  SOLID FLASH™	SLE 78CFX5000PH  INTEGRITY GUARD  SOLID FLASH™ <span style="background-color: #0056b3; color: white; padding: 2px 5px; font-weight: bold;">new</span>
Product description	Security cryptocontroller	Security cryptocontroller	Security cryptocontroller	Security cryptocontroller
Interfaces	ISO 7816	ISO 7816	ISO 7816	ISO 7816
MEMORY	240kByte SOLID FLASH, 8kByte RAM	300kByte SOLID FLASH, 8kByte RAM	404kByte SOLID FLASH, 8kByte RAM	500kByte SOLID FLASH, 12kByte RAM
CPU	Dual 16-bit	Dual 16-bit	Dual 16-bit	Dual 16-bit
Crypto coprocessor symmetrical	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
Crypto coprocessor asymmetrical	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, ECC up to 521-bit
Ambient temperature	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
Delivery forms	Contact-based module, wafer sawn	Contact-based module, wafer sawn	Contact-based module, wafer sawn	Contact-based module, wafer sawn
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	National eID, eHealth card / eSocial card, eDriver's License, eTachograph, eVehicle Registration Card / eCar Registration, eSignature
Certification level	CC EAL6+ high/ EMVCo	CC EAL6+ high/ EMVCo	CC EAL6+ high/ EMVCo	CC EAL6+ high/ EMVCo













Secure eGovernment Bundles				
Product name	SLN 52GDA128DM  INTEGRITY GUARD <b>new</b>	PCL16MCOS01ID	SLJ 52GDL128DL  INTEGRITY GUARD <b>new</b>	JCLX80jTOP31Dv2
Product description	Native Generic ID Platform	Native Basic ID Platform	JavaCard Platform, including ePassport & eSign Applet	JavaCard Platform, including ePassport Applet
Communication Interfaces	ISO 7816, ISO 14443 A/B	ISO 7816, ISO 14443 A	ISO 7816, ISO 14443 A/B, Mifare compatible interface	ISO 7816, ISO 14443 A/B
Supported Standards	ICAO BAC, SAC, AA, BSI-TR03110 v1.11 and v2.05 EAC, ISO 7816-4, 8, 9, ISO 18013 BAP, EAP config 1-4	ISO 18013 BAP config 1, ISO 7816-4, 8, 9	JC 3.0, GP 2.2, ICAO BAC, SAC, AA, BSI-TR03110 v1.11 EAC, ISO 18013 BAP, EAP config 1-4	JC 2.2.1, GP 2.1.1, ICAO BAC, AA, BSI-TR03110 v1.11 EAC, ISO 18013 BAP, EAP config 1
User Memory	36, 80, 128 kByte EEPROM	8, 16 kByte EEPROM	36, 80, 128 kByte EEPROM	36, 80 kByte EEPROM
OS Provider	Masktech - MTCOS	Masktech - MTCOS	Trusted Logic - jTOP	Trusted Logic - jTOP
Symmetrical Cryptography	DES, 3DES, AES up to 256-bit	DES, 3DES	DES, 3DES, AES up to 256-bit	DES, 3DES, AES up to 128-bit
Asymmetrical Cryptography	RSA up to 4096-bit, ECC up to 512-bit	–	RSA up to 4096-bit, ECC up to 521-bit	RSA up to 2048-bit, ECC up to 521-bit
Typical applications	National eID, ePassport, eHealth card / eSocial card, eDriver's License, eVisa, eResidence Permit, eVehicle Registration Card / eCar Registration, eSignature	National eID, ePassport, eHealth card / eSocial card, eDriver's License, eVisa, eResidence Permit, eVehicle Registration Card / eCar Registration	National eID, ePassport, eHealth card / eSocial card, eDriver's License, eVisa, eResidence Permit, eVehicle Registration Card / eCar Registration, eSignature	National eID, ePassport, eHealth card / eSocial card, eDriver's License, eVisa, eResidence Permit, eVehicle Registration Card / eCar Registration, eSignature
Certification level	CC EAL4+ high	–	CC EAL5+ high	CC EAL5+ high

## Secure eGovernment









	DataCarrier			
Product name	SLE 5532	SLE 5542	SLE 5518	SLE 5528
Product description	Intelligent 256Byte EEPROM with Write Protection Function	Intelligent 256Byte EEPROM with Write Protection Function and Programmable Security Code	Intelligent 1024Byte EEPROM with Write Protection Function	Intelligent 1024Byte EEPROM with Write Protection Function and Programmable Security Code
Counter	–	–	–	–
ROM	–	–	–	–
PROM	–	–	–	–
EEPROM	256Byte	256Byte	1024Byte	1024Byte
Security features	Shielding, locked chip coding, sensory- and logical security functions, Byte protection	Shielding, locked chip coding, sensory- and logical security functions, Programmable Security Code, Byte protection	Shielding, locked chip coding, sensory- and logical security functions, Byte protection	Shielding, locked chip coding, sensory- and logical security functions, Programmable Security Code, Byte protection, transport code
Min. write/erase time	2.5ms/2.5ms	2.5ms/2.5ms	5ms/5ms	5ms/5ms
Operating voltage	5V	5V	5V	5V
Max. supply current	3mA	3mA	1mA	1mA
Ambient temperature	-40 to +80°C	-40 to +80°C	-40 to +100°C	-40 to +100°C
Endurance	100,000	100,000	100,000	100,000
Retention time, minimum	10 years	10 years	10 years	10 years
Delivery forms	MFC 3.1 (FCOS™), module M3, wafer sawn	MFC 3.1 (FCOS™), module M3, wafer sawn	MFC 3.1 (FCOS™), module M3, wafer sawn	MFC 3.1 (FCOS™), module M3, wafer sawn
Tools	EVA-kit	EVA-kit	EVA-kit	EVA-kit
Typical applications	Healthcare and Health Insurance Card, Member Card	Healthcare and Health Insurance Card, Member Card	Healthcare and Health Insurance Card, Member Card	Healthcare and Health Insurance Card, Member Card








## USB Tokens

	USB Tokens (16-bit)			
Product name	SLE 78CUFX3000PH   INTEGRITY GUARD  SOLID FLASH™	SLE 78CUFX3009PH   INTEGRITY GUARD  SOLID FLASH™	SLE 78CUFX500FPH   INTEGRITY GUARD  SOLID FLASH™	SLE 78CUFX5000PH   INTEGRITY GUARD  SOLID FLASH™
Product description	USB-Security cryptocontroller	USB-Security cryptocontroller for use in chipcard formfactor	USB-Security cryptocontroller for use in chipcard formfactor	Multi-Interface USB-Security cryptocontroller
Interfaces	USB 2.0, ISO 7816	USB 2.0, ISO 7816	USB 2.0, ISO 7816	USB 2.0, GPIO, IIC, SPI, ISO 7816
MEMORY	300kByte SOLID FLASH, 12kByte RAM	300kByte SOLID FLASH, 12kByte RAM	500kByte SOLID FLASH, 12kByte RAM	500kByte SOLID FLASH, 16kByte RAM
CPU	Dual 16-bit	Dual 16-bit	Dual 16-bit	Dual 16-bit
Crypto coprocessor symmetrical	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
Crypto coprocessor asymmetrical	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, ECC up to 521-bit
Ambient temperature	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
Delivery forms	VQFN32-13, wafer sawn	Contact-based module, wafer sawn	Contact-based module, wafer sawn	VQFN32-13, wafer sawn
Typical applications	USB tokens	USB tokens	USB tokens	USB tokens
Certification level	CC EAL6+ high/ EMVCo	CC EAL6+ high/ EMVCo	CC EAL6+ high/ EMVCo	CC EAL6+ high/ EMVCo





## USB Tokens

	USB Tokens (16-bit) <sup>1)</sup>			
Product name	SLE 78CLUFX3000PH <b>new</b>  INTEGRITY GUARD  SOLID FLASH™	SLE 78CLUFX5000PH <b>new</b>  INTEGRITY GUARD  SOLID FLASH™	SLE 78CLUFX5007PH <b>new</b>  INTEGRITY GUARD  SOLID FLASH™	SLE 78CLUX5000PH <b>new</b>  INTEGRITY GUARD  SOLID FLASH™
Product description	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 with a contactless interface
Interfaces	USB 2.0, GPIO, IIC, SPI, ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface	USB 2.0, GPIO, SPI, ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface	USB 2.0, GPIO, IIC, SPI, ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface, sub ID1 dedicated product	USB 2.0, GPIO, IIC, SPI, ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface
MEMORY	300kByte SOLID FLASH, 12kByte RAM	500kByte SOLID FLASH, 16kByte RAM	500kByte SOLID FLASH, 16kByte RAM	500kByte SOLID FLASH, 182kByte ROM, 16kByte RAM
CPU	Dual 16-bit	Dual 16-bit	Dual 16-bit	Dual 16-bit
Crypto coprocessor symmetrical	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
Crypto coprocessor asymmetrical	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, ECC up to 521-bit
Ambient temperature	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
Delivery forms	VQFN32-13, wafer sawn	VQFN32-13, wafer sawn	VQFN32-13, wafer sawn	VQFN32-13, wafer sawn
Typical applications	USB tokens	USB tokens	USB tokens	USB tokens
Certification level	CC EAL6+ high/ EMVCo	CC EAL6+ high/ EMVCo	CC EAL6+ high/ EMVCo	CC EAL6+ high/ EMVCo



<sup>1)</sup> Supporting CIPURSETM for all contactless and NFC applications

USB Tokens (32-bit)			
SLE 78CLUX5007PH <b>new</b>  INTEGRITY GUARD  SOLID FLASH™	SLE 97CUFX5000PH <b>new</b>  SOLID FLASH™	SLE 97CUFX500FPH <b>new</b>  SOLID FLASH™	SLE 97CUSIFX5000PH <b>new</b>  SOLID FLASH™
Multi-Interface USB-Security cryptocontroller with a contactless interface	USB-Security cryptocontroller	USB-Security cryptocontroller for use in a chipcard formfactor	Multi-Interface USB-Security cryptocontroller
USB 2.0, GPIO, IIC, SPI, ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface, sub ID1 dedicated product	USB 2.0, ISO 7816	USB 2.0, ISO 7816	USB 2.0, GPIO, IIC, SPI, ISO 7816
500kByte SOLID FLASH, 182kByte ROM, 16kByte RAM	504kByte SOLID FLASH, 20kByte RAM	504kByte SOLID FLASH, 20kByte RAM	504kByte SOLID FLASH, 24kByte RAM
Dual 16-bit	32-bit	32-bit	32-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
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, ECC up to 521-bit
-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
VQFN32-13, wafer sawn	VQFN32-13, wafer sawn	Contact-based module, wafer sawn	VQFN32-13, wafer sawn
USB tokens	USB tokens	USB tokens	USB tokens
CC EAL6+ high/ EMVCo	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo

## USB Tokens

	USB Tokens (32-bit)	
Product name	SLE 97CUSIFX8000PH   SOLID FLASH™	SLE 97CUSIFX1M00PH   SOLID FLASH™
Product description	Multi-Interface USB-Security cryptocontroller	High Density Multi-Interface USB-Security cryptocontroller
Interfaces	USB 2.0, GPIO, IIC, SPI, ISO 7816	USB 2.0, GPIO, IIC, SPI, ISO 7816
MEMORY	792kByte SOLID FLASH, 24kByte RAM	1MB SOLID FLASH, 32kByte RAM
CPU	32-bit	32-bit
Crypto coprocessor symmetrical	DES, 3DES, AES up to 256-bit	DES, 3DES, AES up to 256-bit
Crypto coprocessor asymmetrical	RSA up to 4096-bit, ECC up to 521-bit	RSA up to 4096-bit, ECC up to 521-bit
Ambient temperature	-25 to +85°C	-25 to +85°C
Delivery forms	VQFN32-13, wafer sawn	VQFN32-13, wafer sawn
Typical applications	USB tokens	USB tokens
Certification level	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo

## Transport & Ticketing

	Dual-interface & Contactless Security Controller <sup>1)</sup>			
Product name	SLE 77CLF601P(M)  SOLID FLASH™ <b>new</b>	SLE 77CLF1001P(M)  SOLID FLASH™ <b>new</b>	SLE 66CL41PE	SLE 66CL80PE (M/S)
Product description	Contactless security controller	Contactless security controller	Contactless security controller	Dual-interface and contactless security controller
Interfaces	ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface	ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface	ISO 14443 A/B, ISO 18092 passive mode, prepared for sub ID1 dedicated products	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface, prepared for sub ID1 dedicated products
MEMORY	60kByte SOLID FLASH, 4kByte RAM	100kByte SOLID FLASH, 4kByte RAM	4kByte EEPROM, 92kByte ROM, 2kByte XRAM, 256Byte IRAM RAM	8kByte (+ 1kByte for M) EEPROM, 92kByte (88kByte) ROM, 2kByte XRAM, 256Byte IRAM RAM
CPU	16-bit	16-bit	8-bit/16-bit	8-bit/16-bit
Crypto coprocessor symmetrical	DES, 3DES, AES up to 256-bit	DES, 3DES, AES up to 256-bit	3DES	3DES
Crypto coprocessor asymmetrical	–	–	–	–
Ambient temperature	-25 to +85°C	-25 to +85°C	-25 to +70°C	-25 to +70°C
Delivery forms	Contactless module, bumped wafer, wafer sawn	Contactless module, bumped wafer, wafer sawn	Contactless module, bumped wafer, wafer sawn	Bumped wafer, wafer sawn, dual interface module
Typical applications	Public Transport, Ticketing	Public Transport, Ticketing	–	–
Certification level	CC EAL5+ high/ EMVCo	CC EAL5+ high/ EMVCo	CC EAL5+ high	CC EAL5+ high

<sup>1)</sup> Supporting CIPURSE™ for all contactless and NFC applications

## Transport & Ticketing

	Dual-interface & Contactless Security Controller <sup>1)</sup>	
Product name	SLE 66CL81PE (M)	SLE 66CL180PE (M/S)
Product description	Contactless security controller	Dual-interface and contactless security controller
Interfaces	ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface, prepared for sub ID1 dedicated products	ISO 7816, ISO 14443 A/B, ISO 18092 passive mode, Mifare compatible interface, prepared for sub ID1 dedicated products
MEMORY	8kByte (+ 1kByte for M) EEPROM, 92kByte (88kByte) ROM, 2kByte XRAM, 256Byte IRAM RAM	18kByte (16kByte +1kByte for M) EEPROM, 92kByte (88kByte) ROM, 2kByte XRAM, 256Byte IRAM RAM
CPU	8-bit/16-bit	8-bit/16-bit
Crypto coprocessor symmetrical	3DES	3DES
Crypto coprocessor asymmetrical	–	–
Ambient temperature	-25 to +70°C	-25 to +70°C
Delivery forms	Contactless module, bumped wafer, wafer sawn	Contactless module, bumped wafer, wafer sawn, dual interface module
Typical applications	–	–
Certification level	CC EAL5+ high	CC EAL5+ high

<sup>1)</sup> Supporting CIPURSETM for all contactless and NFC applications

Contactless Security Controller with integrated CIPURSE™ functionality	
Product name	SLS 32TLC100 (M1/M4) CIPURSE™ Security Controller <span style="background-color: #004a99; color: white; padding: 2px 5px; font-weight: bold;">new</span>
Product description	Contactless Security Controller featuring CIPURSE™ functionality and Mifare compatibility
Interfaces	ISO/IEC 14443-4 Transmission Protocol, ISO/IEC 14443-3 A (configurable), Mifare compatibility optional
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
Supported profiles	CIPURSE™ T with consistent transaction mechanism, CIPURSE™ V2, CIPURSE™ T compliant
Capabilities	8 applications configurable, Mifare 1K compatible emulation optional, Mifare 4K compatible emulations optional
User memory	8 kBytes
Personalization	File System oriented personalization interface
Crypto coprocessor symmetrical	AES 128-bit
Ambient temperature	-25 to +85°C
Delivery forms	Contactless Modules
Typical applications	Public Transport, Ticketing, Access Management
Certification level	CIPURSE™ Certification (pending), CC EAL5+ high (pending)

## Transport & Ticketing

	Mifare compatible, my-d™ proximity and ticketing products			
Product name	SLE 66R16S my-d™ proximity	SLE 66R32S my-d™ proximity	SLE 66R04S my-d™ proximity	SLE 66R35(I)(R) - Fully Mifare Compatible
Product description	Security memory with authentication, 2560Byte EEPROM	Security memory with authentication, 5120Byte EEPROM	Security memory with authentication, 770Byte EEPROM	Intelligent 1kByte EEPROM using Mifare technologies, (I) = Supporting 4 kByte fixed number, non unique ID (R) = Supporting 4 kByte reused ID
Interface	ISO/IEC 14443-3 Type A	ISO/IEC 14443-3 Type A	ISO/IEC 14443-3 Type A	ISO/IEC 14443-3 Type A
Memory organization	Up to 15 sectors fully configurable (14 secure, 1 plain)	Up to 15 sectors fully configurable (14 secure, 1 plain)	Up to 15 sectors fully configurable (14 secure, 1 plain)	16 fixed sectors
Counter	Up to 65,536 units, support of anti-tearing	Up to 65,536 units, support of anti-tearing	Up to 65,536 units, support of anti-tearing	–
EEPROM - user	2008Bytes	4056Byte	576Byte	768Byte EEPROM
EEPROM - administration	552Byte	1064Byte	194Byte	256Byte
Security features	Transport key, mutual authentication with 64-bit keys, hierarchical key management, unique serial number	Transport key, mutual authentication with 64-bit keys, hierarchical key management, unique serial number	Transport key, mutual authentication with 64-bit keys, hierarchical key management, unique serial number	Transport key, mutual three pass authentication with 48-bit keys, unique 4byte serial number
Distance (read/write)	Typically up to 10cm and above	Typically up to 10cm and above	Typically up to 10cm and above	Typically up to 10cm and above
Data rate	106kbit/s to card up to 848kbit/s to reader	106kbit/s to card up to 848kbit/s to reader	106kbit/s to card up to 848kbit/s to reader	106kbit/s
Endurance	100,000	100,000	100,000	100,000
Retention time, minimum	10 years	10 years	10 years	10 years
Delivery forms	NiAu-bump, MCC2, MCC8	NiAu-bump, MCC2, MCC8	NiAu-bump, MCC2, MCC8	NiAu-bump, wafer, MCC2, MCC8
Tools	Evaluation Kit Contactless	Evaluation Kit Contactless	Evaluation Kit Contactless	Evaluation Kit Contactless
Typical applications	Public Transport, Ticketing	Public Transport, Ticketing	Public Transport, Ticketing	Public Transport, Ticketing, Access Management







SLE 66R01P my-d™ move	SLE 66R01L my-d™ move lean
Intelligent 1216-bit EEPROM	Intelligent 576-bit EEPROM
ISO/IEC 14443-3 Type A NFC Forum Type 2 Tag operation	ISO/IEC 14443-3 Type A NFC Forum™ Type 2 Tag operation
1 fixed sector	1 fixed sector
16-bit counter with anti-tearing support	–
128Byte	48 kByte EEPROM
24Byte	24Byte
Unique serial number, 32-bit password protection for read and/or write access, block locking, individual page locking, password retry counter	Unique serial number, block locking, individual page locking
Typically up to 10cm and above	Typically up to 10cm and above
106kbit/s to card up to 848kbit/s to reader	106kbit/s
10,000	10,000
5 years	5 years
NiAu-bump, wafer	NiAu-bump, wafer
Evaluation Kit Contactless	Evaluation Kit Contactless
Public Transport, Ticketing, Access Management	Public Transport, Ticketing, Access Management

## Transport & Ticketing

	DataCarrier			
Product name	SLE 5532	SLE 5542	SLE 5518	SLE 5528
Product description	Intelligent 256Byte EEPROM with Write Protection Function	Intelligent 256Byte EEPROM with Write Protection Function and Programmable Security Code	Intelligent 1024Byte EEPROM with Write Protection Function	Intelligent 1024Byte EEPROM with Write Protection Function and Programmable Security Code
Counter	–	–	–	–
ROM	–	–	–	–
PROM	–	–	–	–
EEPROM	256Byte	256Byte	1024Byte	1024Byte
Security features	shielding, locked chip coding, sensory- and logical security functions, Byte protection	shielding, locked chip coding, sensory- and logical security functions, Programmable Security Code, Byte protection	shielding, locked chip coding, sensory- and logical security functions, Byte protection	shielding, locked chip coding, sensory- and logical security functions, Programmable Security Code, Byte protection, transport code
Min. write/erase time	2.5ms/2.5ms	2.5ms/2.5ms	5ms/5ms	5ms/5ms
Operating voltage	5V	5V	5V	5V
Max. supply current	3mA	3mA	1mA	1mA
Ambient temperature	-40 to +80°C	-40 to +80°C	-40 to +100°C	-40 to +100°C
Endurance	100,000	100,000	100,000	100,000
Retention time, minimum	10 years	10 years	10 years	10 years
Delivery forms	MFC 3.1 (FCOS™), module M3, wafer sawn	MFC 3.1 (FCOS™), module M3, wafer sawn	MFC 3.1 (FCOS™), module M3, wafer sawn	MFC 3.1 (FCOS™), module M3, wafer sawn
Tools	EVA-kit	EVA-kit	EVA-kit	EVA-kit
Typical applications	Electronic Ticketing, Loyalty Card, Access Control	Electronic Ticketing, Loyalty Card, Access Control	Electronic Ticketing, Loyalty Card, Access Control	Electronic Ticketing, Loyalty Card, Access Control

## Authentication

	Turn-key Solution	Contact-based Security Controller		
Product name	OPTIGA™ Trust SLS 10ERE <b>new</b>	SLE 97CSFX1M00PE <b>new</b>  SOLID FLASH™	SLE 97CIFX1M00PE <b>new</b>  SOLID FLASH™	SLC 52EIA500 <b>new</b>  INTEGRITY GUARD  SOLID FLASH™
Product description	Original Product Authentication and Brand Protection Solution	Security Controller	Security Controller	Security Controller
Interfaces	SWI	SPI, ISO 7816	ISO 7816, I2C	I2C
MEMORY	3.5kbit EEPROM	1MByte SOLID FLASH, 32kByte RAM	1MByte SOLID FLASH, 32kByte RAM	500kByte SOLID FLASH, 182kByte ROM, 16kByte RAM
CPU	nDSP	32-bit	32-bit	Dual 16-bit
Crypto coprocessor symmetrical	–	3DES, AES up to 256-bit	3DES, AES up to 256-bit	3DES, AES up to 256-bit
Crypto coprocessor asymmetrical	ECC 163-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
Ambient temperature	-30 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
Delivery forms	USON-3	SMD, wafer sawn	SMD, wafer sawn	VQFN-32, wafer sawn
Typical applications	Printer Cartridges, Authentication of System Services, Accessories, Original Replacement Parts, Medical & Diagnostic Supply Equipment, Functionalities and Parts in Networked Systems	Authentication of System Services, Printers, System Configuration Management	Authentication of System Services, Printers, System Configuration Management	Authentication of System Services, Printers, System Configuration Management
Certification level	–	CC EAL5+ high	CC EAL5+ high	CC EAL6+ high

## Trusted Computing

	TPM			
Product name	SLB 9635	SLB 9645	SLB 9660	SLB 9665
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 Bus	I2C	LPC Bus	LPC Bus
MEMORY	–	–	–	–
CPU	8-bit/16-bit	16-bit	16-bit	16-bit
Crypto coprocessor symmetrical	acc. to TCG standard	acc. to TCG standard	acc. to TCG standard	acc. to TCG standard
Crypto coprocessor asymmetrical	acc. to TCG standard	acc. to TCG standard	acc. to TCG standard	acc. to TCG standard
Ambient temperature	0 to +70°C	-20°C to +80°C, -40°C to +85°C	-20°C to +80°C, -40°C to +85°C	-20°C to +80°C, -40°C to +85°C
Delivery forms	TSSOP-28	TSSOP-28, VQFN-32	TSSOP-28, VQFN-32	TSSOP-28, VQFN-32
Typical applications	Trusted Platform Module (1.2)	Trusted Platform Module (1.2)	Trusted Platform Module (1.2)	Trusted Platform Module (2.0)
Certification level	CC EAL4+ moderate	–	CC EAL4+ moderate	CC EAL4+ moderate

	Contact-based Security Controller			
Product name	SLE 88CFX2921P	SLE 88CFX3521P	SLE 88CFX4001P	SLE 88CFX4003P
Product description	Security cryptocontroller	Security cryptocontroller	Security cryptocontroller	Security cryptocontroller
Interfaces	ISO 7816	ISO 7816	ISO 7816	ISO 7816
MEMORY	292kByte FLASH, 16kByte + 880Byte crypto RAM	352kByte FLASH, 16kByte + 880Byte crypto RAM	400kByte FLASH, 16kByte + 880Byte crypto RAM	400kByte FLASH, up to 168kByte ROM, 16kByte + 880Byte crypto RAM
CPU	32-bit	32-bit	32-bit	32-bit
Crypto coprocessor symmetrical	3DES	3DES	3DES	3DES
Crypto coprocessor asymmetrical	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, ECC up to 521-bit
Ambient temperature	-25 to +85°C	-25 to +85°C	-25 to +85°C	-25 to +85°C
Delivery forms	Wirebond module, DSO-20, TSSOP-20, VQFN-10, wafer sawn	Wirebond module, DSO-20, TSSOP-20, VQFN-10, wafer sawn	Wirebond module, DSO-20, TSSOP-20, VQFN-10, wafer sawn	Wirebond module, DSO-20, SSOP- 20, VQFN-10, wafer sawn
Typical applications	Conditional Access	Conditional Access	Conditional Access	Conditional Access
Certification level	CC EAL5+ high	CC EAL5+ high	CC EAL5+ high	CC EAL5+ high

## Object Identification

	PJM Stack Tag
Product name	SRF66V10ST
Product description	Plain memory, zero separation stackability, 10kBit EEPROM
Interface	ISO/IEC 18000-3 mode 2
Memory organization	1 fixed sector
Counter	–
EEPROM - user	1016Byte
EEPROM - administration	14Byte
Security features	Unique serial number, 48-bit write password, lock pointer
Distance (read/write)	Typically up to 1m
Data rate	423.75kbit/s to card. 105.94kbit/s to reader @ 8 channels
Endurance	100,000
Retention time, minimum	10 years
Delivery forms	NiAu-bump, wafer
Tools	Evaluation Kit PJM
Typical applications	Document Logistics, Pharmaceuticals

## Object Identification

	my-d™ vicinity plain			
Product name	SRF 55V02P	SRF 55V02P HC	SRF 55V10P	SRF 55V10P HC
Product description	Plain memory, 2.5kbit EEPROM	Plain memory, 2.5kbit EEPROM	Plain memory, 10kbit EEPROM	Plain memory, 10kbit EEPROM
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	1 fixed sector	1 fixed sector
Counter	Up to 65,536 units, support of anti-tearing	Up to 65,536 units, support of anti-tearing	Up to 65,536 units, support of anti-tearing	Up to 65,536 units, support of anti-tearing
EEPROM - user	224Byte	224Byte	992Byte	992Byte
EEPROM - administration	64Byte	64Byte	256Byte	256Byte
Security features	Unique serial number, individual page locking	Unique serial number, individual page locking	Unique serial number, individual page locking	Unique serial number, individual page locking
Distance (read/write)	Typically up to 1.5m	Typically up to 1.5m	Typically up to 1.5m	Typically up to 1.5m
Data rate	26.48kbit/s	26.48kbit/s	26.48kbit/s	26.48kbit/s
Endurance	100,000	100,000	100,000	100,000
Retention time, minimum	10 years	10 years	10 years	10 years
Delivery forms	NiAu-bump, wafer, MCC2, MCC8	NiAu-bump, wafer, MCC2, MCC8	NiAu-bump, wafer, MCC2, MCC8	NiAu-bump, wafer, MCC2, MCC8
Tools	Evaluation Kit Contactless	Evaluation Kit Contactless	Evaluation Kit Contactless	Evaluation Kit Contactless
Typical applications	Inventory Control, Libraries	CD Inlays, Laundry	Inventory Control, Libraries	Factory Automation, Inventory Control

## Object Identification





	my-d™ vicinity secure			
Product name	SRF 55V02S	SRF 55V02S HC	SRF 55V10S	SRF 55V10S HC
Product description	Security memory with authentication, 2.5kbit EEPROM	Security memory with authentication, 2.5kbit EEPROM	Security memory with authentication, 10kbit EEPROM	Security memory with authentication, 10kbit EEPROM
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	Up to 15 sectors fully configurable (14 secure, 1 plain)	Up to 15 sectors fully configurable (14 secure, 1 plain)	Up to 15 sectors fully configurable (14 secure, 1 plain)	Up to 15 sectors fully configurable (14 secure, 1 plain)
Counter	Up to 65,536 units, support of anti-tearing	Up to 65,536 units, support of anti-tearing	Up to 65,536 units, support of anti-tearing	Up to 65,536 units, support of anti-tearing
EEPROM - user	224Byte	224Byte	992Byte	992Byte
EEPROM - administration	64Byte	64Byte	256Byte	256Byte
Security features	Transport key, mutual authentication with 64-bit keys, hierarchical key management, unique serial number	Transport key, mutual authentication with 64-bit keys, hierarchical key management, unique serial number	Transport key, mutual authentication with 64-bit keys, hierarchical key management, unique serial number	Transport key, mutual authentication with 64-bit keys, hierarchical key management, unique serial number
Distance (read/write)	Typically up to 1.5m	Typically up to 1.5m	Typically up to 1.5m	Typically up to 1.5m
Data rate	26.48kbit/s	26.48kbit/s	26.48kbit/s	26.48kbit/s
Endurance	100,000	100,000	100,000	100,000
Retention time, minimum	10 years	10 years	10 years	10 years
Delivery forms	NiAu-bump, wafer, MCC2, MCC8	NiAu-bump, wafer, MCC2, MCC8	NiAu-bump, wafer, MCC2, MCC8	NiAu-bump, wafer, MCC2, MCC8
Tools	Evaluation Kit Contactless	Evaluation Kit Contactless	Evaluation Kit Contactless	Evaluation Kit Contactless
Typical applications	Ticketing, Brand Protection	Ticketing, Brand Protection	Ticketing, Brand Protection	Ticketing, Brand Protection








## Components for Terminals


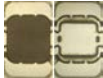


	EasySAM
Product name	SLF 9620
Product description	Security access module for Mifare compatible interface, my-d™ algorithm, 3DES and AES128
Interface	ISO 7816
Memory organization	Enables security authentication between the reader and my-d™ chip cards or cards using Mifare technology, 3DES or AES128 authentication schemes. It features a dedicated key management system including key derivation and key upload.
Security features	Mifare compatible encryption, my-d™ encryption schemes, 3DES and AES128, online and offline modes, secure key loading
Data rate	Division Factor Fi/Di up to 8
Anticollision	–
Ambient temperature	-25 to +75°C
Delivery forms	ID-1/000 card (mini-SIM format), M5.1, VQFN-8
Typical applications	Security applications with keybased authentication, Transport, Access Control, Electronic Ticketing
Tools	Evaluation Kit Contactless
Main applications	Transport & Ticketing, Authentication





## Modules

	Contact-based Controller Modules			
Product name	S-MFC5.6	S-MFC5.4	S-MFC6.8	S-MFC6.6
Picture				
Product description	Contact-based module, 6 Contacts, FCOST™ technology, transparent PET Tape	Contact-based module, 6 Contacts, FCOST™ technology, transparent PET Tape	Black lined contact-based module, 8 contacts	Black lined contact based module, 6 contacts
Pitch	9.5mm	9.5mm	14.25mm	9.5mm
Dimensions	11 x 8.3mm	10.4 x 7.6mm	13 x 11.8mm	11 x 8.3mm
Thickness	max. 0.9mm	max. 420µm	max. 470µm	max. 470µm
Contact Surface	NiAu	Ag	NiAu	NiAu
ISO - reference	ISO 7816-1, ISO 7810, ISO 10373-1/-3	ISO 7816-1, ISO 7810, ISO 10373-1/-3	ISO 7816-1, ISO 7810, ISO 10373-1/-3	ISO 7816-1, ISO 7810, ISO 10373-1/-3
Derivatives	Au surface, S-MFC5.6-6-1	Au surface, S-MFC5.4-6-1	Au surface, Pd surface, S-MFC6.8-8-1, S-MFC6.8-8-3	Au surface, Pd surface, S-MFC6.6-6-1, S-MFC6.6-6-3
Delivery form	Tape on reel	Tape on reel	Tape on reel	Tape on reel
Main applications	SIM & UICC	SIM & UICC	Payment, Secure eGovernment	Payment, Secure eGovernment





P-M2M5.1	T-M5.1	P-M4.8	T-M4.8	S-MFC1.6-6-1
				
Contact-based module, 8 contacts, Epoxy Tape, Wire Bond, Mold	Contact-based module, 8 contacts, Epoxy Tape, Wire Bond, Glob Top	Contact-based module, 8 contacts, Epoxy Tape, Wire Bond, Mold	Contact-based module, 8 contacts, Epoxy Tape, Wire Bond, Glob Top	Contact-based module, 6 Contacts, FCOS technology, transparent PET Tape
14.25mm	14.25mm	14.25mm	14.25mm	9.5mm
13 x 11.8mm	13 x 11.8mm	13 x 11.8mm	13 x 11.8mm	11 x 8.3mm
max. 600µm	max. 580µm	max. 600µm	max. 580µm	max. 0.9mm
CIN+	CIN+	CIN	CIN	Ni Coating
ISO 7816-1, ISO 7810, ISO 10373-1/-3	ISO 7816-1, ISO 7810, ISO 10373-1/-3	ISO 7816-1, ISO 7810, ISO 10373-1/-3	ISO 7816-1, ISO 7810, ISO 10373-1/-3	ISO 7816-1, ISO 7810, ISO 10373-1/-3
Au surface	Au surface, Pd surface, T-M5.1-8-1, T-M5.1-8-2	Au surface, Pd surface	Au surface, Pd surface, T-M4.8-8-1, T-M4.8-8-2	Ni coating
Tape on reel	Tape on reel	Tape on reel	Tape on reel	Tape on reel
Industrial M2M, Consumer M2M	Payment, Secure eGovernment	Payment, Secure eGovernment	SIM & UICC, Payment, Secure eGovernment, Pay-TV	SIM & UICC




## Modules

	Contact-based Memory Modules	Contactless Controller & Memory Modules		
Product name	T-M3.2	P-MCS8-2-1	P-MCC8-2-6 <span style="background-color: #0056b3; color: white; padding: 2px;">new</span>	P-MCC2-2-1
Picture				
Product description	Contact-based module, 6 contacts, Epoxy Tape, Wire Bond, Glob Top	Thin contactless mold module	Optimized standard contactless mold module, successor of P-MCC8-2-3	2 Antenna Contacts, Wire Bond, Mold, Leadframe
Pitch	14.25mm	9.5mm	9.5mm	4.75mm
Dimensions	11 x 8.3mm	8.1 x 5.15mm	8.1 x 5.15mm	10.3 x 2.9mm
Thickness	max. 580µm	max. 250µm	max. 340µm	max. 330µm
Contact Surface	CIN	Ag	Ag	Ag
ISO - reference	ISO 7816-1, ISO 7810, ISO 10373-1/-3	ISO 7816-1, ISO 7810, ISO 10373-1/-3	ISO 7816-1, ISO 7810, ISO 10373-1/-3	ISO 7816-1, ISO 7810, ISO 10373-1/-3
Derivatives	Au surface	-	-	-
Delivery form	Tape on reel	Tape on reel	Tape on reel	Tape on reel
Main applications	Access Control, Healthcare, Loyalty, Ticketing	Payment, Secure eGovernment	Payment, Secure eGovernment, Transport	Access Control, Ticketing, Transport


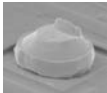

Dual Interface Modules			
P-FTM8-2-1	T-M8.4	P-M8.4	S-COM8.6
			
High end contactless mold module, Epoxy Tape	Dual Interface Module, 8 contacts CB, 2 Antenna Contacts, Epoxy Tape, Wire Bond, Glob Top	Dual Interface Module, 8 contacts CB, 2 Antenna Contacts, Epoxy Tape, Wire Bond, Mold	Black lined dual interface module, 6 CB contacts and Coil on Module, Inductive coupling
9.5mm	14.25mm	14.25mm	14.25mm
8.2 x 5.7mm	13 x 11.8mm	13 x 11.8mm	13 x 11.8mm
max. 260µm	max. 580µm	max. 620µm	max. 470µm
Au	CIN	CIN	NiAu
ISO 7816-1, ISO 7810, ISO 10373-1/-3	ISO 7816-1, ISO 7810, ISO 10373-1/-3	ISO 7816-1, ISO 7810, ISO 10373-1/-3	ISO 7816-1, ISO 7810, ISO 10373-1/-3
-	Au surface, C4/C8, La/Lb to, Pd surface, T-M8.4-8-1, T-M8.4-8-2, T-M8.4-8-8	Au surface	Au surface, Pd surface
Tape on reel	Tape on reel	Tape on reel	Tape on reel
Secure eGovernment	Payment, Secure eGovernment	Payment, Secure eGovernment	Payment

## Modules

	SMD Packages			
Product name	DSO-8-2	DSO-20-2	TSSOP-28-2	USON-10-1
Picture				
Product description	Lead	Lead	Lead	Small Outline, No-Lead, Exposed pad
Pitch	1.27mm	1.27mm	0.65mm	0.5mm
Dimensions	4.93 x 3.94mm	12.8 x 7.6mm	9.7 x 4.4mm	3 x 3mm
Thickness	max. 1.75mm	max. 2.64mm	max. 1.1mm	max. 600µm
Contact Surface	Sn	Sn	Sn	NiPd-AuAg
ISO - reference	–	–	–	–
Derivatives	–	–	–	–
Delivery form	Tape on reel	Tape on reel	Tape on reel	Tape on reel
Main applications	Pay TV, Authentication	Pay TV, Authentication	Trusted Computing	Authentication

VQFN-8-1,-2,-4	VQFN-10-2	VQFN-32-13
		
Small Outline, No-Lead, Exposed pad	Small Outline, No-Lead, Exposed pad	Small Outline, No-Lead, Exposed pad
1.27mm	1.27mm	0.5mm
5 x 6mm	6 x 5mm	5 x 5mm
max. 900µm	max. 900µm	max. 0.9mm
NiPd-AuAg	NiPd-AuAg	NiPd-AuAg
–	–	–
–	–	–
Tape on reel	Tape on reel	Tape on reel
Industrial M2M, Consumer M2M, Trusted Computing, Authentication	Trusted Computing, Pay TV, Authentication	Embedded Secure Element

## Preassembly

Preassembly			
Product name	Bumping NiAu	Stud Bump	Wafer Thinning and Dicing
Picture			
Product description	NiAu bump on the pad height: h=30 $\mu$ m; h=15 $\mu$ m	Gold bump on the pad: $\phi$ 77 $\mu$ m, h=31 $\mu$ m; $\phi$ 60 $\mu$ m, h=28 $\mu$ m	Standard thinning and dicing or DBG (Dicing Before Grinding) depending on final thickness
Thickness	–	–	50 $\mu$ m, 150 $\mu$ m other thicknesses on request
Inking	optional	optional	optional
Mapping	standard	standard	standard
Delivery form	Wafer frame	Wafer frame	Sawn wafer on UV foil
Documents	Specification NiAu Bumping, Chip Delivery Specification for 8"/12" 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





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