Product Brief

Boosted NFC Secure Element
Security solution for mobile payment

The Infineon Boosted NFC Secure Element is designed for mobile payment services via active boost transmission technology. Targeting the smart wearable devices with NFC secure payment and other portable smart devices, as well as NFC smart cards like SIM/UICC or micro SD card, the Boosted NFC security products significantly reduce the footprint of the antenna while enhancing the contactless performance, thus enable the design of mobile payment secure devices with self-contained NFC functionality in ultra small size.

As a leader in the security IC market for more than two decades and being certified with the industry top security certificates like EMVCo and CC EAL6+ (high) and more, Infineon security devices are worldwide deployed in financial institutes' contactless and dual interface chip cards, transportation ticket solutions as well as the SIM/UICC based payment applications. The Boosted NFC Secure Element provides financial transactions, SIM/UICC functionality as well as other NFC card functions on one device. It is connected to a booster frontend* to provide the active boost transmission. This frontend boosts the secure element's response signal to the NFC reader/initiator and improves the receiving sensitivity, in order to improve the performance compared to a classic NFC passive communication.

Provide ISO/IEC 14443 type A , type B as well as ISO/IEC 18092 card modulation via ACLB interface to the booster frontend. The software and applications designed for classic dual interface SLE 77/SLE 78 product families can be quickly adapted to Boosted NFC products. The solution provides a secured application system together with NFC functions, and solves proximity communication problems as an ultra small NFC device. It has reliable NFC performance even when the mechanical construction of the host device partially shields the radio signals.

Pin configuration of Boosted NFC Secure Element

Main features

› Security controller supporting Boosted NFC frontends with active boost transmission
› Crypto@2304T engine for public key cryptography
 – RSA up to 4096 bit
 – ECC up to 521 bit
› Symmetric Crypto Processor (SCP) for triple-key triple-DES and AES acceleration
› ISO/IEC 14443 type A and type B, ISO/IEC 18092 card via ACLB interface
› ISO/IEC 7816 interface
› Optional GPIOs
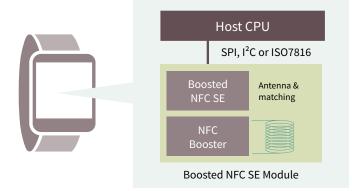› Optional SPI interface
› Optional compatible functionality

Applications

› Ultra small form factored NFC secure components with antenna for wearable smart devices
› Secure NFC SIM, NFC SD or micro SD card with integrated NFC antenna
› Other small form factored NFC secure components (for example SMD component) for wearable smart devices

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Application example

Host CPU

SPI, I²C or ISO7816

Boosted NFC SE

Antenna & matching

NFC Booster

Boosted NFC SE Module

For a secure element final design with NFC functionality added, a well established and customer accepted form factor is the critical success factor. Furthermore mass productivity and being distributed through established channels will provide real commercial advantages.

The ultra small form factor system designs with Boosted NFC Secure Element contains all necessary functions for realizing the mobile payment, thus enables the innovative mobile commercial applications for service providers like mobile networks operators, financial institutes and other financial payment service providers.

In order to achieve the best system performance, Infineon provides also a turn-key design support for above applications.

Product summary

Product	NVM [kB]	Interfaces	RAM [kB]	Cryptography	Certification level	ROM [kB]	SSC/SPI	GPIOs
SLE 77CAFX2400P(M)	240	– ISO/IEC 7816 – ACLB	6	3DES, AES, RSA, ECC	EAL5+ high EMVCo	n/a	n/a	n/a
SLE 78CAFX4000P(M)	400	– ISO/IEC 7816 – ACLB	8	3DES, AES, RSA, ECC	EAL6+ high EMVCo	n/a	n.a.	n.a.
SLE 78CAFX508SPHM	500	– ISO/IEC 7816 – ACLB – GPIOs and SPI	8	3DES, AES, RSA, ECC	EAL6+ high EMVCo	n/a	Master and slave	12[1]
SLE 78CAFX512SPHM			12					
SLE 78CAFX518SPHM			18					
SLE 78CAX508SPHM	500	– ISO/IEC 7816 – ACLB – GPIOs and SPI	8	3DES, AES, RSA, ECC	EAL6+ high EMVCo	182	Master and slave	12[1]
SLE 78CAX512SPHM			12					
SLE 78CAX518SPHM			18					
SLE78CAFX628SPHM	628	– ISO/IEC 7816 or I²C – ACLB	12	3DES, AES, RSA, ECC	EAL6+ high EMVCo	n/a	n/a	n/a
SLE78CAFX1M1SPHM	628	– ISO/IEC 7816 or I²C – ACLB	12	3DES, AES, RSA, ECC	EAL6+ high EMVCo	444	n/a	n/a

1) Total available numbers of GPIOs

Additional information
For further information on technologies, our products, the application of our products, delivery terms and conditions and/or prices, please contact your nearest Infineon Technologies office (www.infineon.com).

Warnings
Due to technical requirements, our products may contain dangerous substances. For information on the types in question, please contact your nearest Infineon Technologies office.

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