

SLE77 WITH ECEBS OPERATING SYSTEM

The SLE77 with ECEBS Operating System is available in Contact, Contactless and Dual Interface formats. The perfect solution for Payment, ID, Transport and more!

Application and Specification Support

| SLE77 with ECEBS OS (Contact) | SLE77 with ECEBS OS (Contactless) | SLE77 with ECEBS OS (Dual Interface) |
|---|--|---|
| Generic ISO 7816-4 file system | Generic ISO 7816-4 file system | Generic ISO 7816-4 file system |
| Payment Application based on EMV CPA for payment confidence | MIFARE legacy applications via MIFARE 1K or 4K emulation | MIFARE legacy applications via MIFARE 1K or 4K emulation |
| EMV Common Personalisation Specification for ease of encoding | UK ITSO scheme (CMD2, ITSO V2.1.4) | UK ITSO scheme (CMD2, ITSO V2.1.4) |
| | | Payment Application based on EMV CPA for payment confidence |
| | | EMV Common Personalisation Specification for ease of encoding |

Additional Application Support

All cards can also support the following applications without impacting the performance or storage requirements of the above:

- **Physical access control**
- **Logical access control**
- **Social care**
- **Library**
- **Leisure**
- **Cashless catering**
- **e-purse**



Benefits

SLE77 with ECEBS OS (Contact) offers class leading performance and data space. It also provides the ability to update applications in the field without the cost overheads of traditional multi-application card platforms. Finally, its EMV-based application enables a more robust and easily integrated payment product.

SLE77 with ECEBS OS (Contactless) is competitively priced whilst also providing greater application flexibility for ITSO ticket storage. Contactless can be easily configured to provide four times the ticket capacity of a DESFire 8k card. Support for MIFARE legacy applications minimises the need for infrastructure replacement.

SLE77 with ECEBS OS (Dual Interface) can be easily configured to provide triple the ITSO ticket capacity of a DESFire 8k card while still supporting EMV payment. With both contact and contactless interface, the Dual Interface option provides ticket loading options not previously accessible.

Post Issuance Updates

All cards can be updated without deleting existing application specific information. New applications can be securely added, amended or deleted, thus removing the cost of re-issuing cards.

Security

All cards are built on one of Infineon's SLE77 family which has been certified to Common Criteria EAL5+ High and by EMVCo. Application security can be easily configured, with options equivalent to banking grade encryption and beyond.



Performance

SLE77 with ECEBS OS (Contact) - provides an excellent customer experience on its multi application platform, thanks to its fast 33 MHz internal clock, communications of up to 424 Kbps and EEPROM programming time ~ 3msecs.

SLE77 with ECEBS OS (Contactless) - internal testing with ITSO tools indicates that Contactless is three to four times faster than Java Card for the card processing component of the ITSO benchmark transactions. Even with Secure Messaging enabled, the ITSO transaction time matches that of the equivalent DESFire transaction - dispelling the myth that CMD2 cards are at an inherent performance disadvantage.

SLE77 with ECEBS OS (Dual Interface) - like Contactless, internal testing with ITSO tools indicates that Dual Interface is three to four times faster than Java Card for the card processing component of the ITSO benchmark transactions. Even with Secure Messaging enabled, Dual Interface's ITSO transaction time matches that of the equivalent DESFire transaction - dispelling the myth that CMD2 cards are at an inherent performance disadvantage.

International Standard Compliances

SLE77 with ECEBS OS (Contact) supports ISO 7816-3 compliant communications and has an ISO 7816-4 file system and command interface. It also includes a payment application based on the EMV CPA specification.

SLE77 with ECEBS OS (Contactless) supports ISO 14443 compliant communications and has an ISO 7816-4 file system and command interface. It also supports CMD2 from ITSO TS1000, part 10: Customer Media Definitions, V2.1.4.

SLE77 with ECEBS OS (Dual Interface) supports both ISO 14443 and ISO 7816-3 compliant communications and ISO 7816-4 file system and command interface. It also supports CMD2 from ITSO TS1000, part 10: Customer Media Definitions V2.1.4. Finally, it also includes a payment based on the EMV CPA specification.

Collaboration



Universal Smart Cards have strong partnerships with Infineon, the chip manufacturer, as well as Ecebs, the developers of this Native OS. With our extensive expertise with smart cards, and Ecebs ITSO accreditations. It allows us to provide the perfect solution to clients looking for a leading edge microprocessor smart card, with native operating system, ideal for payment, ID and Transport.



Specifications

| Features | Contact | Contactless | Dual Interface |
|--|--|--|--|
| Base Platform | ECEBS Native OS on Infineon SLE77 | ECEBS Native OS on Infineon SLE77 | ECEBS Native OS on Infineon SLE77 |
| Multi-application | Yes | Yes | Yes |
| Field updatable | Yes | Yes | Yes |
| General | | | |
| Operating Voltage | 2.7v-5.5v | 2.7v-5.5v | 2.7v-5.5v |
| Generic ISO 7816 File System Support | Yes | Yes | Yes |
| Post-Issuance Update and Management | Yes | Yes | Yes |
| Anti-tear Support | Yes | Yes | Yes |
| MIFARE support | | Yes - 1k and 4k emulation available | Yes - 1k and 4k emulation available |
| Maximum Internal Clock Frequency | 33MHz | 33MHz | 33MHz |
| Contact Interface | | | |
| Compliance | ISO 7816 T=1 | | ISO 7816 T=1 |
| Baud Rate (at 3.579 MHz external clock rate) | Up to 424 Kbits/s | | Up to 424 Kbits/s |
| RF-Interface | | | |
| ISO 14443 Compliance | | Type A | Type A |
| Frequency | | 13.56 MHz | 13.56MHz |
| Baud Rate | | 106 - 424 Kbits/s | 106 - 424 Kbits/s |
| Operating Distance | | Up to 100mm | Up to 100mm |
| Memory | | | |
| EEPROM Size (Available for data) ¹ | 30K - 144K | 30K - 144K | 30K - 144K |
| Write Endurance | 500000 Cycles | 500000 Cycles | 500000 Cycles |
| Data Retention | 10 years | 10 years | 10 years |
| Programming Time | <3.2 msec | <3.2 msec | <3.2 msec |
| Maximum No. Applications | 252 | 252 | 252 |
| Security | | | |
| Random Number Generation | Yes | Yes | Yes |
| Triple DES | For user authentication, data encryption and integrity | For user authentication, data encryption and integrity | For user authentication, data encryption and integrity |
| AES | AES-128, AES-256 | AES-128, AES-256 | AES-128, AES-256 |
| RSA | 4096 bit | 4096 bit | 4096 bit |
| SHA | SHA-1 | SHA-1 | SHA-1 |
| Physical Attack Defences | Yes | Yes | Yes |
| SPA, DPA, DEMA, Timing Attack Defences | Yes | Yes | Yes |
| Environmental Detectors | Voltage, Glitch, Frequency, Temperature and Light | Voltage, Glitch, Frequency, Temperature and Light | Voltage, Glitch, Frequency, Temperature and Light |
| ITSO Specific Features | | | |
| ITSO TS1000 Part 10 V2.1.4 | N/A | CMD2 | CMD2 |
| ITSO Benchmark Test #1 (CMD, SAM & POST) with secure messaging | N/A | 48 msec | 48 msec |
| Anti-tear Support | N/A | 195 msec | 195 msec |
| Triple DES Mutual Authentication | N/A | Yes | Yes |
| Triple DES Secure Messaging | N/A | Yes | Yes |