



LOGOS
Smart Card



Logos Exolvo™

A platform you can bank on

Version 2.5

State of the art **smart card operating systems**

LOGOS EXOLVO™

Logos Smart Card - the leading independent supplier of chip modules to smart card vendors globally – introduce the Exolvo™ Smart Card Chip Family for deployment of EMV cards, such as Visa and MasterCard, as well as regional payment schemes. This move enables local and regional card manufacturers to offer a certified and complete product to issuers, without depending on the global competitors to supply the modules.

OVERVIEW

Built upon decades of smart card experience with hundreds of millions of cards deployed annually, the Exolvo™ platform offers renowned and versatile products, certified for ultimate security.

The Exolvo™ products are deployed on chip modules. The chip modules are used in payment cards. They comply with the latest standards and specifications and come with integrated Visa VSDC 2.8.1 and MasterCard M/Chip Advance applets.

In different regions there are different levels of security required for card holder authentication. SDA is the cost-efficient type of card with static data authentication, and still account for the highest volume of EMV cards globally. In a move to increase security, migration to DDA (dynamic data authentication) is now completed in Europe. Other regions are expected to follow as credit card brands are taking action to reduce fraud. EMV payment cards can either communicate through the chip contact plate when inserted in the terminal or they can communicate contactless using a built-in antenna. The Logos Exolvo™ range covers all of these requirements.

Dual interface products are implemented and certified according to VCPS and Paypass specifications to offer swift contactless transactions according to the latest and strictest performance requirements.

All Exolvo™ products comply with EMV Card Personalization Specification (CPS) - also previously known as Common Personalization Specification. Therefore little or no modification is required to the personalization procedures when introducing the Exolvo™ products.

Certification by the major brands Visa and MasterCard provides the ultimate assurance. Card issuers and card manufacturers can have full confidence in the Exolvo™ products.

KEY FEATURES

- Used in both contact and contactless payment supporting SDA as well as DDA/CDA to meet all the requirements
- Platform based on open standards: Java Card and Global Platform
- Integrates latest versions of the applets VSDC 2.8.1 (VIS 1.5.4) and M/Chip Advance
 - M/Chip Advance is the first version of M/Chip that is backwards compatible to all previous versions including M/Chip 4.0 and 2.1.
- Highly secure platform with certified security
- Standardized personalization according to EMV CPS

SECURITY



Due to the risk of fraud, Visa and MasterCard, both define comprehensive and rigid requirements that ensure the highest level of security. Logos has in the design and development taken all of these into account, while taking advantage of Logos' long lasting experience of smart card software development to achieve the highest level of security. Evaluation by accredited third-party laboratories include code review as well as physical attacks and provide the proof of the secure implementation.

Exolvo Platform	Exolvo SDA	Exolvo DDA	Exolvo DDA DI
Type	Contact only	Contact only	Dual interface
Java Card	2.2.1	2.2.1	2.2.1
Global Platform	2.1.1	2.1.1	2.1.1
Visa Global Platform	Config 1	Config 2	Config 2
Applications			
Visa Integrated Circuit Card Specification (VIS)	1.5.3	1.5.3 / 1.5.4	1.5.4
Visa Contactless Payment Specification (VCPS)	-	-	2.1.2
VSDC Applet	2.8.1am2s	2.8.1am2 / f1	2.8.1f1
qVSDC, SqVSDC, MSD	-	-	✓
M/Chip Advance	Payment v.1.1	Payment v.1.1	Payment v.1.1
Paypass	-	-	✓
EMV Card Personalisation Specification (CPS)	1.1	1.1	1.1
PSE	✓	✓	✓
PPSE	-	-	✓
DPA (part of VSDC)	✓	✓	✓
CAP	✓	✓	✓
Certificates			
EMVCo (chip)	✓	✓	✓
Visa	✓	✓	✓
MasterCard	✓	✓	✓
Interface Specifications			
ISO 7816-1	✓	✓	✓
ISO 7816-2	✓	✓	✓
ISO 7816-3	T=0	T=0	T=0
EMV Application Independent ICC toTerminal Interface Requirements	4.2	4.2	4.2
ISO 14443	-	-	Type B
EMV Contactless Communication Protocol Specification	-	-	2.0.1
Cryptographic Functions			
DES, 3-DES	✓	✓	✓
AES	-	-	✓
SHA-1	-	✓	✓
RSA key size	-	1408 bits	1408 bits
SPA/DFA/DPA protection	HW/SW	HW/SW	HW/SW
Hardware Specifications			
NVM	4kB	12kB/ 16kB	20kB
RAM	4kB	6kB	8kB
DES accelerator	✓	✓	✓
AES accelerator	-	-	✓
Cryptographic co-processor	-	✓	✓
EEPROM write cycles (chip dependent)	500 000	500 000	500 000
Voltage range	2.7 V- 5.5 V	2.7 V - 5.5 V	2.7 V - 5.5 V
Speed enhancement (personalization only)	16 clocks/ETU	16 clocks/ETU	16 clocks/ETU

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