



NXP® JCOP® Java Card™ OS for SmartMX3® Secure Microcontrollers

JCOP 4: The Most Advanced Java Card OS for Secure Identity Applications

JCOP 4 is a secure, field-proven, vendor-independent OS for secure identity chip-card applications. It provides multi-application support for contact, contactless, and dual communication interfaces, and delivers benchmark transaction performance for security documents.

KEY FEATURES

- ▶ >1 billion devices powered by JCOP already deployed in the field
- ▶ Best-in-class in terms of performances with an e-Passport SAC transaction in less than 2s
- ▶ Java Card v3.0.5 Classic Edition
- ▶ GlobalPlatform®
 - GP v2.2 ID Configuration
 - GP v2.2 Mapping Guidelines configuration v1.0.1
 - GP v2.3 Common Implementation Configuration v2.0
- ▶ ISO 7816-3 T=0, T=1
- ▶ ISO 14443 (up to 848kbps)
- ▶ Dual-interface support
- ▶ Support of DES, 3DES, AES, RSA, ECC and SHA via dedicated hardware-based coprocessors
- ▶ Operating System located in ROM boosting execution performance
- ▶ Available Non-Volatile Memory (NVM) for applications and personalization data up to 180kB
- ▶ Highly flexible feature and Applet selection for FLASH preloading for customer-specific products
- ▶ MIFARE Plus® / MIFARE Classic® EV1 or MIFARE® DESFire® EV2 contactless IC implementations
- ▶ Support (optional)
 - Korean SEED support (optional)
 - Match-on-Card (optional)
- ▶ Common Criteria EAL 6+ certified
- ▶ EMVCo™ approved
- ▶ FIPS certified

KEY BENEFITS

- ▶ Unique platform supports convergence of secure identity, payment and transport, increasing flexibility while reducing cost and complexity
- ▶ Easy implementation with full range of certified applets available for loading to FLASH, improving time-to-market, offering highest customization capabilities
- ▶ Optimized for high performance OS initialization and personalization for excellent machine utilization and throughput
- ▶ JCOP best-in-class transaction speed – from border control gates to contactless payment terminals, and automatic fare/ collection schemes – enabling a unique and differentiated customer experience
- ▶ Trusted Java Card OS Open Platform based on current and future NXP secure ICs with highest certification security level, ensuring reliable project deployment

APPLICATIONS

- ▶ National eID
- ▶ Electronic Passport
- ▶ Electronic Driver's License Card
- ▶ Electronic Health and Social Benefits Cards
- ▶ ePKI / eServices / Digital Signature Card
- ▶ Payment and Micro Payment
- ▶ Public Transport
- ▶ Logical and Physical Access



Common Criteria EAL 6+ certified and EMVCo approved, JCOP 4 is optimized for use with NXP's SmartMX3 family, a line of secure microcontrollers with hardware accelerators.

JCOP 4 supports every SmartMX3 crypto-algorithm and delivers best-in-class transaction performance and personalization time (with ~50% reduced perso time compared to JCOP 3).

Customers can develop their own Java Card applets based on JCOP and have them loaded to FLASH memory, or get a head start on design by using NXP's available applets.

The NXP offering for JCOP includes cost-effective solutions based on the first advanced CMOS040 technologies available on the market with more than >1B FLASH secure ICs sold.

PRODUCT FEATURES

ITEM	JCOP 4
Specifications and Features	
Java Card Version	3.0.5 Classic Edition
GlobalPlatform Version	2.3
Secure Channel Protocol (SCP)	SCP 01, 02 and 03
Delegated Management	Yes
Secure Box	Yes
Physical Unclonable Function (PUF)	Yes
Available Memory and Technology	
FLASH (available before loading MIFARE, Applets, OS Addons)	up to 180kB
CMOS Technology	CMOS040
MIFARE IC	
MIFARE Classic / Plus Implementation	EV1 – up to 4kB (optional)
MIFARE DESFire Implementation	EV2 – up to 8kB (optional)
Transaction Performance	
SAC Electronic Passport	< 2s
MasterCard Transaction Time	< 200ms
Cryptography	
DES/TDES	56b, 112b and 168b
AES	256b
RSA	4096b
ECC GF(p)	521b
SHA	128b, 224b, 256b, 384b and 512b
Certifications and Approvals	
EMVCo Platform Approval	Yes
VISA Approvals	Yes
MasterCard PIC (TAS & CAST)	Yes
EMVCo CPA	Yes
Common Criteria for OS	EAL 6+ (AVA_VAN.5, ALC_FLR.1 and ASE_TSS.2)
Federal Information Processing Standard (FIPS)	140-2 level 3

APPLETS

Name	Specification & Features
Secure Identity Application Suite	<ul style="list-style-type: none"> ICAO BAC (CC EAL4+) ICAO SAC / EAC (PACEv2) (CC EAL5+) Secure Signature Creation Device – SSCD (CC EAL5+) National eID European Citizen Card PKI / Digital Signature eIDAS International Driving License European Health Insurance Card Fingerprint Match-On-Card One Time Password
VISA	VSDC2.9, VSDC2.8.1G1
MasterCard M/Chip Advance	M/Chip Advance v1.2 Specification including Data Storage and MMAR
EMVCo CPA	<ul style="list-style-type: none"> EMV Common Payment Application Specification v1 Dec 2005