SmartMX for programmable, high-security, multi-application smart cards

SmartMX, the platform of choice for secure and fast data transactions, is a proven solution for contact and contactless applications including eGovernment, banking, and PayTV. It offers advanced attack resistance and high performance, with cryptographic coprocessors and ultra-low-power design.

**Features**
- Security certified according to CC EAL5+
- EEPROM: 8 to 144 KB
  - Data retention time: 25 years
  - Endurance: 500 000 cycles minimum
- ROM: 160 to 264 KB
- RAM: 3.5 to 7.5 KB
- Interfaces
  - Contact interface according to ISO/IEC 7816
  - Contactless interface according to ISO/IEC 14443 A
- Voltage class: C, B, and A (1.62 to 5.5 V)
- Memory Management Unit (MMU)
- MIFARE Classic implementation (1 K or 4 K)
- High-speed 3-DES coprocessor (64-bit parallel)
- High-speed AES coprocessor (128-bit parallel)
- PKI (RSA, ECC) coprocessor FameXE (32-bit parallel)
- Broad spectrum of delivery types
  - 150 µm and 75 µm sawn wafers
  - Contact, dual interface and contactless chip modules down to 250 µ width
  - Very tiny SMD packages

**Application**
- eGovernment
  - ePassports, national ID cards, health and social-security cards, citizen cards and resident permits, driver’s licenses, high-security physical/logical access control
- Banking
  - Debit, credit (MasterCard PayPass, VISA qVSDC), convergence (payment and public transportation), loyalty, mobile payment
- Mobile and set-top-box PayTV
- The SmartMX Family is steadily enhanced with regard to most recent CMOS process technology generations thus always offering best constraints for security and optimized transaction times

The NXP SmartMX family meets the highest performance standards and forthcoming security requirements yet reduces overall cost. It is a proven, reliable solution for smart transactions – with almost one billion ICs shipped – that delivers leading-edge performance in contactless operation along with reduced personalization time.
Building on NXP’s track record of innovation, the SmartMX platform is supported by a product roadmap that offers increasing levels of convenience and security.

Options include a broad spectrum of industry-leading and certified delivery types that enable optimized product implementation and reduced time to market. Faster personalization time lowers production costs, for an efficient price/performance ratio.

SmartMX also has a built-in Memory Management Unit (MMU) to support strong firewalls and enhance security levels within a multi-application set-up. All relevant cryptographic algorithms are supported with “hardened” IC blocks equipped with unique features. Cryptographic coprocessors support public key algorithms, and optimized, certified crypto libraries are available for interfacing the coprocessors and simplifying development of a secure OS.

To service a range of applications in eGovernment and banking, SmartMX supports proprietary operating systems as well as open-platform solutions such as Java and MULTOS. Its contact interface meets the international standard ISO/IEC 7816 and its contactless interface complies with ISO/IEC 14443.

### SmartMX

<table>
<thead>
<tr>
<th>Application Type</th>
<th>EEPROM ROM (Kbyte)</th>
<th>Features</th>
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<tbody>
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In addition, MIFARE Classic implementation supports a wide variety of automated fare collection (AFC) schemes for public transport.

**Excellent security measures**

The product family is certified Common Criteria EAL 5+, so it protects against light attacks, invasive fault attacks, and side-channel attacks, and comes with a CRI license for improved DPA/SPA attack resistance features.

**Steady extension of the SmartMX portfolio**

NXP has been ranked number one in ABI’s Contactless IC Vendor Ranking for two years running. Our new P5CD145 platform, which includes the dual interface types P5CD016, P5CD041, P5CD081, P5CD128 products, features Secure Fetch™ technology and delivers Mchip4 transaction times < 400 ms. The platform is EMV-compliant, supporting antennas down to one half ID1, and offers an EAC reading time down to 3.5 seconds with a 50kbyte dataset.

The proven SmartMX series fully supports multi application requirements and very high performance needs and will be further enhanced with the new SmartMX2 family.

[ICs with DPA Countermeasures functionality](#)